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ALBERT EIDE PARR

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1926-1967

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SELECTED PAPERS
1959 - 1967

Designed for Display

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

Although many of us undoubtedly bear the burden of strong feelings about the external style and appearance of the structures in which we pursue our profession, it is the form and dimensions of the interior spaces that are of primary concern to the museum worker. Architectural interiors consciously and specifically designed for indoor display of the products of commerce or the treasures of the collector represent a very recent development in the history of western civilization. But the exhibition hall evolved so gradually from older forms that it would be difficult to establish any "firsts," nor would it serve any purpose to do so in this context.

It was only logical that the public museums, born of the curio cabinets of private collectors, should fall heir to the esthetic tradition and concepts of private residential, manorial, or palatial architecture. In fact, the architecture itself was often inherited along with the tradition and the collections. As the museums grew larger, it was obviously from the palatial settings for gala events of state that they drew the inspiration for their own great halls, which became large and ornate spaces extending through most of the height of the building, with galleries sometimes connecting with lesser rooms in the wings, sometimes existing as galleries only.

In spite of their appearances and dimensions, the early museum halls were actually functional in purpose if not in style. The main floor and the galleries did provide the setting for the display of the museum's collections and exhibits, and were fully intended to do so. The main hall of the Royal Scottish Museum in Edinburgh, opened in 1875, is a fine example of great historical interest, and so is the Galerie de Zoologie, which was inaugurated in 1889 at the Muséum National d'Histoire Naturelle in Paris. The attractive main hall of the Koninklijk In-

stitut voor de Tropen in Amsterdam, begun in 1913 but not completed until 1923, is of a later date, but falls into the same category of space created for utilitarian exhibition purposes, however ornamental in design.

While many great museum halls continued to be built and used for exhibition, it is interesting to note a tendency to revert to the original purposes of the architectural tradition in which these halls were designed. During the early years of the twentieth century, a purely ceremonial great hall, larger than any of the exhibition rooms, appeared in many museum plans. According to its location in the total structure, it might be viewed as an entrance lobby in the grand manner of the great opera houses, or as a central hall of state connecting the surrounding exhibition areas. These great halls did provide enviable settings for festive occasions, but in daily life served mainly to impress the visitors with the dignity and solemnity of the institution they had entered. To the extent that this might help to induce better behavior and a more appreciative attitude among the visitors, one should not too lightly dismiss the value of including a space mainly designed to impress among those directly designed to educate. Perhaps the handsomest ceremonial hall actually built for museum purposes, and not inherited with a palace, is that of Nordiska Museet in Stockholm. Its massive beauty stands in interesting contrast to the slender structural elegance of the great exhibition halls in the Zoological Museum in Paris and the Scottish Museum in Edinburgh. True to its conception, the main hall of Nordiska Museet held no exhibits when the photograph shown in Figure 4 was taken in 1907.

The vision of a luxurious and awe-inspiring ceremonial hall will probably always offer its temptations to museum donors and directors. But as the twentieth century progressed, concern for economy grew. In later plans many institutions have tried to achieve a compromise between the purely ceremonial and the entirely utilitarian great hall by installing suitable ornamental samples from their collections, essentially as decorations out of context, serving to call attention to the diversity and wealth of the museum's treasures, without being an integrated part of its educational exhibits. The great hall of the Chicago Natural History Museum is a good example of such use of a central and dominant space.

While the dreams and ambitions of museums sought expression in

Fig. 1. The main hall of the Royal Scottish Museum in Edinburgh. Opened in 1875.

Fig. 2. The great hall of the Galerie de Zoologie, Muséum National d'Histoire Naturelle, Paris. Inaugurated in 1889.

Fig. 1

Fig. 2

Fig. 3

their lofty great exhibition halls, we find commercial establishments vying with one another for the most impressive display of their goods in splendid vistas under truly breath-taking domes. Even an insensitive person would find it difficult not to react to the dramatic use of space and style in the interior architecture of such great stores as Au Printemps in Paris.

Between the two world wars economy of space in new construction became a necessity in many parts of the world, and simplicity of design

Fig. 3. A view of the main hall of Koninklijk Institut voor de Tropen in Amsterdam. Begun in 1913, completed in 1923.

Fig. 4. Great hall of Nordiska Museet in Stockholm. Photographed at the time of its opening in 1907.

Fig. 4

Fig. 5

soon became fashionable everywhere. Gone from the new plans was the opulence of vast empty spaces both in the museums and in the market places. Even many of the great halls that already existed in both kinds of establishments soon disappeared into a layer cake of new floors and ceilings. Economy of operation became as important as economy of construction, and the taste of the new era placed little premium upon spaciousness as an elegant virtue in itself. If they escaped the fate of structural alterations, the stately new museum halls so recently created for purely ceremonial purposes were likely to be pressed into service as additional exhibition areas.

Many of the halls that came to an end were tawdry and ostentatious. Much of the new design was good, attuned to the mood and tempo of a crowded and restless age. A glance into the new sales floors of Au Printemps is tempting and exciting. The great dinosaurs rear their giant height with attractive dignity under a flat ceiling. But much that was lost was gracious and inspiring, and much that was not allowed to be born could have provided oases of serenity and a stimulating change of pace in our crowded existence between rectangular walls under flat ceilings.

In the case of the habitat halls of the natural history museums there are also special reasons for simplicity of form and dimensions. If an assertive design of high walls and tall ceilings above his head impresses itself upon the consciousness of the spectator, it makes it ever so much harder to create in his mind an illusion of infinitely higher blue skies within the low dimensions of the exhibit before him. And the light that surrounds him must emanate largely or entirely from the view he is looking at, if the pattern of sunlight and shadow under painted skies is going to carry conviction, for the same reason that the light in the audience is dimmed when the curtain goes up on the stage. But tall ceilings hidden in dimness or darkness would make little sense from any point of view. And so we have two separate and special reasons why the ceilings of habitat halls should be low and featureless, and the wall surfaces plain.

But simplicity of design, like simplicity of mind, is no guarantee of charm. It can also be simply boring, especially when offered in large doses. How to avoid the boredom of monotony within the austere limitations imposed upon design by the demands of economy and of currently modern taste therefore becomes a very serious problem.

In the great halls of museums and department stores the scale of the objects on display and the scale of the space in which they find their

Fig. 5. Great hall of Chicago Natural History Museum. Opened in 1921.

setting are so different that the architectural container and its contents function on entirely different levels of visual impact, and can be treated as virtually independent esthetic elements. The style and ornamentation of the hall bear no relation to the form and dimensions of the exhibits, and do not need to, just as the beauty of a human face is independent of the esthetic qualities of its microscopic histology, and vice versa.

This esthetic divorce between large-scale container and small-scale contents will be clearly revealed if we submit Figures 5 to 8 to close scrutiny. That it springs from the difference in dimensions, and particularly in dimensions of height, becomes obvious if we conduct the mental experiment of imagining the embellishments of a lofty hall as a background for the dinosaurs under the flat ceiling of Figure 12, or competing with the luxuriant display of goods at close quarters in a space such as that shown in Figure 9.

The great halls therefore did, and still could, offer splendid opportunities for relief from monotony by playing architecture against display, instead of fusing the two into a completely integrated whole, from which there is no escape. When the near scene of the exhibits begins to pall, the larger vistas will rest the eye and refresh the mind with a totally different set of impressions of another visual environment, just as the eye

Fig. 6. Au Printemps, Paris. Grand hall, Anciens Magasins, in 1923.

Fig. 7. Au Printemps, Paris. Hall Binet, Nouveaux Magasins. Photographed after the fire in 1924.

Fig. 7

Fig. 8. Great hall of Nordiska Museet photographed in 1951. Compare with Figure 4.

Fig. 9. Au Printemps, Paris. Ground floor, Anciens Magasins, 1949.

Fig. 10. Au Printemps, Paris. Small hall on ground floor of Nouveaux Magasins in 1954.

and the mind may seek the view from the window after too much reading.

Paradoxically, our reasoning leads to the conclusion that the great halls are best used for the display of the smallest objects, which will insure maximum difference in scale and minimum danger of esthetic conflict or interference between container and contents. A pattern of small, discrete objects, arranged separately or in showcases on the main floor and the galleries of a monumental hall becomes part of the texture rather than of the form of the larger whole. It does not take much imagination to visualize, by mental extrapolation from some of the illustrations accompanying this article, how increasing the size of the objects contained actually reduces the esthetic effectiveness of some of the finest halls conceived on the grand scale, unless, of course, the objects are directly related to the architecture—historically, stylistically, and in their arrangement—as in historical buildings and palaces. But exceptions of this kind do not ameliorate the problem for the natural history museums. These, however, might do well to consider a re-introduction of the ornate spaciousness of great halls and open galleries for the display of such things as insects and minerals and many others, and to relieve the tedium of long strolls through a maze of cubicular rooms under low ceilings.

When the objects become larger they first approach the scale of the decorative elements of architectural design. Since neither the curator nor the manager of a store can be required to make a choice of specimens or products that will always harmonize with a permanently predetermined

Fig. 9

Fig. 10

ornamental motif, structural ornamentation proves an esthetic liability in the actual use of the space, and a smooth simplicity of all planes and curved surfaces becomes a requirement.

But the need for simplicity applies only to the surfaces and not to the larger forms surrounding objects of medium size. On the contrary, exhibits of this kind offer particularly good opportunities to create variety in the vistas facing the visitor, by molding the general shape of each hall to fit the organization of its subject matter rather than the form of the objects it contains.

Virtually any theme that we may try to develop in our museum exhibits has an inner logic suggestive of a geometric pattern, as the triangle has long been symbolic of the interplay of three independent forces, whether it be in human relations or in the inorganic world. In some subjects our concepts and our knowledge seem to radiate from a central idea, premise, fact, or definition to which we must return again and again. The logical sequences of other topics form closed cycles of interrelated causes and effects, following one another in endless repetition around a perimeter without ever focusing upon a center. Still other themes unfold in an open progression, never returning upon themselves, although their direction may change from chapter to chapter.

A recognition of these infinitely varied patterns gives us opportunity to mold the shape of each exhibition space to the configuration inherent in the logic of its subject, thereby providing subtle guidance for the orderly study of what is immediately before the visitor, and, at the same time, a measure of relief from monotony in the cumulative experience of his museum visit. It is not enough to avoid repetition of specimens; we must also avoid repetition of the larger impressions which the vistas of each hall present to the public. In a large museum it is impossible to expect that our visitors will be interested in every specimen or even in every hall they see. But it is quite within possibility to make them feel that they are having a pleasant and diverting walk through all the halls they wander through, even where the actual exhibits hold no particular

Fig. 11. Hall of Reptiles and Amphibians. The American Museum of Natural History. Photographed in 1928.

Fig. 12. Tyrranosaur Hall after modernization in 1956. The American Museum of Natural History.

Fig. 13. View of habitat groups in Hall of American Forests. The American Museum of Natural History, 1958. Simplicity of surfaces, variety of larger forms of space.

Fig. 13

Fig. 11

Fig. 12

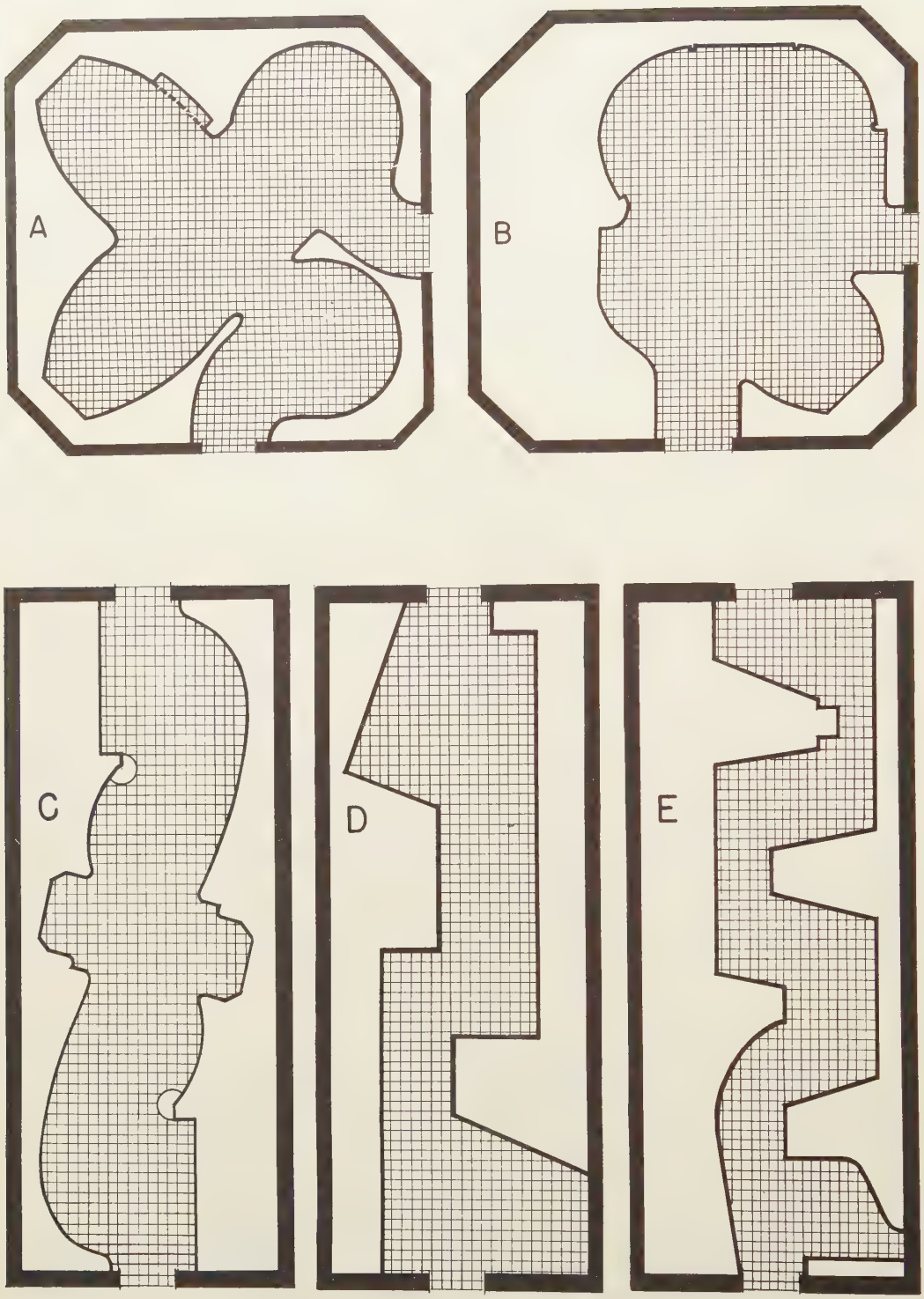

Fig. 14

interest for them. To create this impression of an enjoyable tour through the museum as a whole, and to provide for a pleasing and profitable time spent with the particular exhibits of one's choice are the twin goals of museum architects and exhibition designers.

In the display of merchandise, it is rarely necessary to submit to a restraint imposed by an inner logic in the relationships between the articles shown. The store can therefore vary the shape of its space for the delectation of its customers, with greater freedom and abandon than are permitted to the museum. But the same principles apply to both. When the space is large and the objects small it is permissible, and often desirable, to use surface ornamentation as a means of enriching the general scene. With smaller space or bigger items simplicity of surface becomes mandatory, but diversity can be created by varying the larger forms of space. When the objects are very large, however, even this alternative is eliminated. Molding a hall to complement the skeleton of a *Brontosaurus* could undoubtedly be done, but it would create a combination of such esthetic inflexibility that the space would be of little use for anything else. In the world of commerce a showroom for locomotives or airplanes should have a simplicity of form as well as surface that might well be found boring as a setting for the display of smaller merchandise.

We have discussed the parallel trends away from large and lofty halls towards low and snug display areas which have developed more or less simultaneously in museums and department stores. There are also some other types of buildings designed for display within their shelter. Permanent halls for temporary fairs and exhibitions have had an interesting and very checkered architectural history, which will not be discussed here, except to point out that the fairgrounds have never joined the museums and stores in their flight from the use of large and open indoor space. The fine early example of London's Crystal Palace as it looked in 1851 has already been illustrated by Witteborg in the first issue of CURATOR (volume 1, number 1, 1958, p. 33). The beautiful, vast, and unencumbered space of the brilliantly designed and recently completed Palazzo Esposizioni in Turin must give any museum director food for thought in his own planning for the future.

Among its many functions the Bouwcentrum in Rotterdam includes the

Fig. 14. Random suggestions of floor plans to fit the organization of subject matter within the structural limitations of space indicated by the heavy black outlines. A. Radiation from a focal concept. B. Peripheral sequence in a closed cycle of interrelationships. C, D, and E. For themes unfolding in open progressions.

presentation of exhibits of a temporary kind along with others of a semi-permanent character, all having to do with building and housing and related subjects. The centrum is neither a museum nor a fair but partakes of some of the best features of both. In its first exhibition hall, opened in 1949, the Bouwcentrum made a very original, ingenious, and successful attempt to combine a feeling of airy spaciousness with an actually quite crowded use of the space. The hall is virtually circular (hexadecagonal) and three and a half stories high, with a dome above. Three peripheral balconies, including the one at the entrance level, completely surround the central space, which has a sunken main floor surmounted by two circular floors in the center of the hall, at levels different from those of the balconies. The outside diameters of the central floors are substantially shorter than the inside diameters between the balconies, leaving a considerable volume of open space, traversed only by "flying" stairs and ramps, between the central and the peripheral tiers of floors. By this arrangement the hall as a whole retains its unity of space, fully exposed to the visitors. The incomplete floors and partitions become part of its general design instead of cubicular subdivisions of its space. The idea behind this plan is one that seems well worthy of further development and application to museum architecture.

Fig. 15

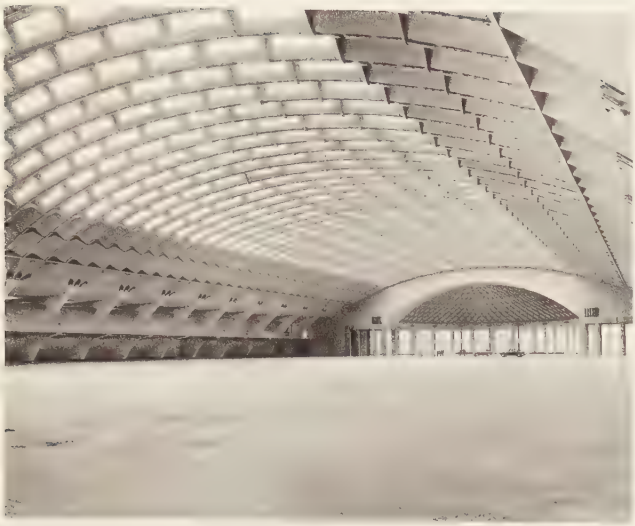

Fig. 16

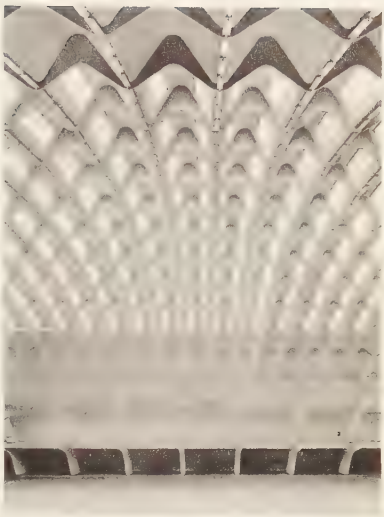

Fig. 17

Each museum or store usually accommodates only a single enterprise using display among the tools of its trade. Exposition halls fulfill the temporary needs of different organizations and individuals. The arcade or galleria represents yet another genus of architecture in which many small and independent establishments seek permanent opportunity to show their wares and conduct their business. The arcade typically tries to maintain the illusion of being an outdoor area under shelter—a square, court, street, or alley spanned by a roof between surrounding buildings housing the stores with their display windows.

In the famous Galleria in Milan two wide streets, for pedestrians only, cross at a central plaza. The surrounding façades rise five stories in height before they reach the sheltering roof. Two "outdoor" restaurants within the Galleria accentuate its spaciousness and one's feeling of being in the open.

Fig. 15. Brontosaurus Hall, The American Museum of Natural History, after modernization in 1953. Simplicity of general form of space as well as simplicity of its surfaces, for the display of large specimens.

Fig. 16. Great hall of Palazzo Esposizioni in Turin. Note cars in background for scale.

Fig. 17. Detail of balcony and ceiling. Palazzo Esposizioni, Turin.

The arcades of other countries are generally low and narrow, not intended to set the stage for gracious leisure, but rather to serve more simply as protected passages leading hurried crowds to the stores, and by their display windows, in less benevolent climates. But even those that close at night, such as London's Burlington Arcade, usually have in common the pretense of being part of the city's public street system, passing between or tunneling through its buildings. A splendid example of a different but related type of edifice is offered by the Cleveland Arcade, which does not seem to have received the recognition it so truly deserves. The Cleveland Arcade is not reached directly from the street, but only by passing through ordinary lobbies that separate the arcade from the sidewalks at either end. Fine stairways between the two lower levels, bronze railings and lampposts, and dramatic proportions give the four-story arcade an aspect of theatrical opulence. In its general concept the Cleveland Arcade might have borrowed ideas from the Galleria of Milan, from the Crystal Palace, the balconied great halls of many museums, and the grand domes of the great stores. Whether its architects did, or not, the results are gratifying and interestingly different.

In the suburban shopping center of today the urban arcade of other days reappears in a modern guise adapted to the age of the automobile. The principle is the same. In the integrated shopping center the premises of many stores and establishments are gathered under a single roof or within a few structures arranged around courts and avenues entirely reserved for a public strolling leisurely about on foot. Although they owe the advantages of their locations to the automobile, the new centers continue the old galleria's rebellion against all vehicles, making the feeling of sanctuary an essential element of their appeal, now as always.

It is the shopping centers with decked-over courts and avenues for protection against inclement weather that particularly deserve the attention of all museum planners. A fine example is Southdale designed by Victor Gruen for a suburb of Minneapolis. One of the great problems of the larger museum is how to serve the needs of the seriously interested and well-informed visitors without inflicting a too heavy diet of details on those less advanced in their appreciation of the articles shown or in their understanding of the subjects illustrated by the exhibits. The idea of a physical separation between exhibits aimed at different levels of knowledge presents itself again and again and finds partial expression

Fig. 18. Bouwcentrum, Rotterdam. A view of the main hall, opened in 1949.

Fig. 19. Section through the main hall of the Bouwcentrum.

Fig. 18

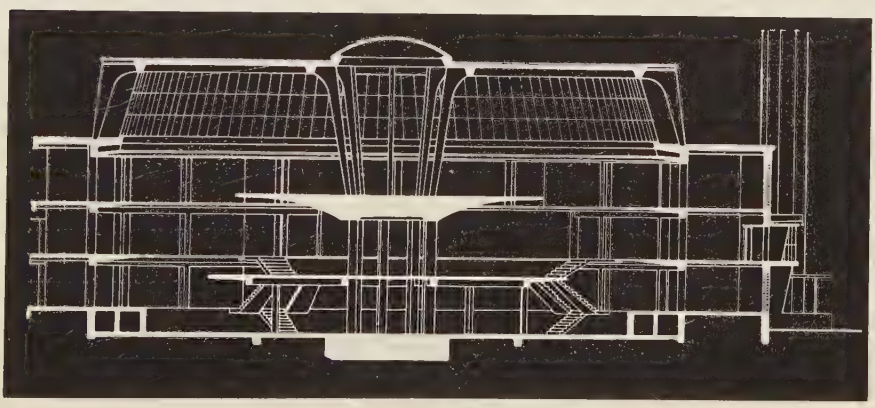

Fig. 19

Fig. 20

Fig. 21

in the children's museum on the one hand, and in the research collection on the other. But there is a vast range of knowledge and interests between those served by exhibits for general public pleasure and education and those that can be satisfied only in the research collections. No general solution for the problems of this intermediate range has yet been put forward. Perhaps an answer is suggested in the design of the shopping center and in the behavior of its visitors.

The creators of the best-designed shopping centers have been pleasantly surprised by the large number of people who flock to their courts and plazas even during days and hours when the stores are actually closed. Like any other retail district, the shopping center has its sightseers and window-shoppers who come to enjoy the spectacle without personal involvement in its more serious purpose. But there are no barriers to keep the passive observer in the court from becoming an active customer in a store, whenever his interest is sufficiently aroused in a setting primarily designed to draw his favorable attention to what he sees.

Is not this anonymous intermingling of window-shoppers and serious customers precisely the problem that confronts the museums in their approach to general adult education through the medium of their exhibition halls? And might it not be possible that the shopping center of today has already revealed to us the architectural form of the museum of tomorrow?

There would be covered courts for the larger objects and ensembles—a dinosaur court, a court of the American Indians, and many others—each presenting to the casual visitor the dramatic essence of a subject, with a brief outline of its logical structure. There would be rambling, covered avenues between display windows where the stroller would be further exposed to the beauty, order, and meaning of the various disciplines. And there would always be the "shops" waiting behind open doors for any visitor with a desire to become absorbed in the fascinating details of the museum's departmental exhibits. The casual seeker of an afternoon's diversion would not be forced to attend visual dissertations by exhibits that would be boring to him, but would always be free to enjoy them without the slightest let or hindrance whenever he should feel so inclined. Space for offices and laboratories, collections and library stacks could be located on upper floors above the "shops" and avenues, where

Fig. 20. Galleria Vittorio Emanuele in Milan, completed in 1877. Picture taken from above the central square.

Fig. 21. The Cleveland Arcade, Cleveland, Ohio. Opened in 1890.

Fig. 22

there is no need for excessively wide clear spans at the exhibition level. It would be quite easy to make provisions in the general layout for almost infinite horizontal expansion. Perhaps we would still be far from the ideal solution, but, until better suggestions are offered, it might pay us very well to turn to the planners of the shopping centers of today for their ideas on the museums of tomorrow.

Fig. 22. Where street and court meet under roof. A corner of the Garden Court, Southdale shopping center, Minneapolis.

Problems of Museum Architecture[1]

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THE AMERICAN MUSEUM OF NATURAL HISTORY

If we were to speak in the same tense of the demands that the museums of today place upon architecture, and the answers that architecture is able to offer to meet these demands, we would be logically inconsistent. A demand must be made before it can be met. The museums of today are the answers to the demands of yesterday, and the demands we make now must be answered by the museums of tomorrow. The task of those concerned with the operation of museums must therefore be that of trying to anticipate and define the needs of the future as goals for the creative genius of architects in the present.

To begin with, let me say that the architectural needs of museums are not universal but peculiar to each institution. To speak of these needs in general terms, and attempt to formulate recommendations applicable in common to the wants of all, would therefore be both presumptuous and illogical. But there are universal factors that have be to taken into account by every museum in determining its own particular and unique requirements, and the questions posed by these cosmic variables may well form the basis of profitable discussion among all concerned with the future of museums.

Since all construction must be preceded by the acquisition of a site, and all planning must be influenced by the nature of the plot, it seems logical to start with the problems of location. By a carry-over of traditions of grandeur from the days of limited audiences with unlimited leisure, many museums around the world have been doomed to the pomp and circumstance of splendid isolation in great parks and open spaces withdrawn from the hurly-burly of vulgar human tasks and pleasures. Museologists have tried to rationalize this condition by hopeful allusions to the

[1] Paper presented on May 25, 1961, at the Conference on Museum Architecture held by the International Council of Museums in Turin, Italy.

"pleasurable stimulus of expectation" created by distance and pastoral surroundings. Whether high expectations improve the impact of the museum's own presentations is very questionable. More utilitarian references to an escape from urban dust in sylvan fields may have had their justification in the days of horse-drawn carriages and unpaved roads. But now that the streets are sealed under asphalt or cement, and the grime of the cities takes the principal form of air-borne pollution carried many miles from its source, the space of a park gives no shelter from the dirt that descends from above.

The contagion of stately retreat would seem to have been more epidemic in America than elsewhere, but cases can be found in all parts of the world, and it is interesting to note that banishment to the outer environs, or at least from the heart of the city, seems to have been far more universally inflicted upon science museums than upon the institutes of art. This differential treatment of sister institutions has reached extremes in such cities as Oslo, Stockholm, or Detroit, and at ICOM conferences, but may also be observed in milder forms in Paris and Chicago, to mention only a few examples.

Until the middle of this century it was quite fitting to speak with derision about the disadvantages of pretentious locations. Progressive thought would favor locales that were easily accessible to all, or at least to the largest possible random sample of the population, without special effort or inconvenience. Central spots, particularly in areas of shopping, entertainment, and other occupations of leisure time, were highly regarded, although only rarely secured for museum use. The desirability of being where the crowds stroll by still holds today, but in many parts of the world we now have a choice to make between strollers on foot and strollers by car, and the same alternatives will soon face museum planners everywhere.

To say that we should be where the crowds are in no sense whatsoever implies a commitment to the idea of quantitative mass education rather than qualitative improvement of the individual. It merely recognizes the fact that no one can know whether he would like good wine until he has tasted it. One often wonders how many there are who might have had their lives greatly enriched and their value to society increased if they had ever come upon a museum in their casual path. If we want all who come to us and all who stay away to act by choice and not by chance we must give all a chance to choose.

Among the possibilities and realities of museum sites are central locations in the hub and hubbub of metropolitan activities, off-center urban locales in residential neighborhoods reached mainly on foot or by common carrier, peripheral suburban spots where the visitors would mostly arrive by private car or special transportation, and, finally, we may always

Fig. 1

have to contend with the temptations of poor but stately locations that would be shunned by any establishment realistically cognizant of its own needs to be in the presence of the public.

A basic question that must be answered before a site is selected concerns the possibility and desirability of having many small or only a single large museum or a combination of both. It is obvious that if a central location is avoided, a multiplicity of institutions will ultimately be demanded. In an interesting study of museums in the United States, Rea[2] has shown that the larger the community is the smaller is the percentage of its members that will attend a single, central museum. Rea's investigation also demonstrated that as the museum and its budgets grow larger the cost per visitor does not diminish. On the contrary, it tends to increase in a quite substantial way. In other words the continued growth of a single central institution brings diminishing returns according to all quantitative methods of measurement.

The high value of the land also argues against having the museums

[2] Paul Marshall Rea, "The Museum and the Community." Science Press, Lancaster, Pennsylvania. 1932.

Fig. 1. Two façades of The American Museum of Natural History.

compete for space in the areas of the city where this competition is most intense. Added to the painful direct cost of securing the site are the undesirable secondary effects of being forced to plan the museum in height, rather than in width, except in the rare instances when economic factors need not be given too serious consideration.

There are many good reasons for objecting to the upward extension of exhibits through two or more floors. Museum fatigue has become a tiresome subject to all concerned with museum functions, but it is not a topic that can be avoided. There can be no doubt that the need to move from floor to floor, whether by stairs, elevators, or escalators, increases the wear and tear of a museum visit. Each ascent or descent disrupts the normal flow of a visitor's experiences and activities in the museum, calls upon him for a new decision, and gives him opportunity to become aware of the drain upon his energies. There is nothing more tiring than a feeling of fatigue. That this is not merely an academic rationalization is amply demonstrated by the records of generally diminishing attendance from floor to floor in the upward direction, regardless of the facilities offered for vertical transport, except when very special attractions are offered at upper levels to counteract the trend, or when other unusual circumstances prevail.

Multilevel space for display also puts great obstacles in the way of

Fig. 2

achieving a rational sequence of exhibits that will sustain the observer's interest and give him a sense of continuity as well as a stimulating change of pace throughout his experiences in the museum. The problem is one of simple mathematics. With a single entrance to a single floor it is possible, but in the writer's opinion not advisable, to restrict traffic to a single route in a single direction. Allowing minimum freedom of choice, at least two different sequences will be followed by the public in its contemplation of the exhibits—from right to left, or from left to right; from beginning to end or from end to beginning. Add another floor, but use a single stairway and we have a minimum of two times two, or four, alternative routes which it will be perfectly normal for the public to follow. Even under such simple circumstances, a four-story exhibit will have to reckon with a minimum of 2^4, or sixteen normal visitors' routes. With two entrances and two stair-

Fig. 3

Fig. 2. Main entrance to The Metropolitan Museum of Art.

Fig. 3. Brooklyn Museum before and after removal of exterior stairway.

ways, instead of one of each, the number of normal routes through four stories becomes 4^4, or 256. It is quite certain that no human brain, and very doubtful whether any electronic substitute, could ever devise a story that would read equally well in 256 different arrangements of its paragraphs and chapters. It is no wonder therefore that museums forced to seek their growth in height and not in width have developed an astounding indifference to *non sequiturs* in their presentations. Of course, *non sequiturs* can be charming, and changes of subject are probably essential stimulants of renewed interest in a large museum. But innovations that are charming or stimulating in one sequence cannot possibly be equally charming and stimulating in 255 other progressions and are bound to be quite disturbing and discouraging in many of the normal suites of experience of a museum visit.

There is one possible solution to the dilemma of exhibition in height which has intrigued the writer for a very long time, namely, the use of a square or rectangular spiral. This is a vulgar, low-bred spiral born of practical considerations, with no mystique in its ancestry. It is not my intention to disparage the esthetics of the spiral. In fact, I am a passionate admirer of its most famous architectural application, which moves me with the stunning impact of a beautiful woman without a sensible thought in her head.

A more utilitarian spiral may be thought of as a series of gently sloping, long, rectangular display areas connected through horizontal squares at the corners so as to form an uninterrupted ramp around a solid central core containing auditorium and smaller lecture halls, library, storage for study collections, and other facilities. There would be only one possible general route to consider in the exhibition plans, although there would be free opportunity for a visitor to limit his visit to any section he might prefer. The public would be lifted to the top of the spiral at the start and would be walking downhill all the way, without being challenged to make repeated and confusing decisions about direction, up or down, right or left, or straight ahead. When the writer privately compared the possibilities of such a spiral with the post-war architectural plans being developed for The American Museum of Natural History during 1942–1944, he was surprised to find how easily the spiral-*cum*-core lent itself to the solution of a great variety of practical problems, but at this point it must suffice to mention that it would require only about one-fourth of the ground area and no more than twice the height for such a form to be able to accommodate all the functional space requirements that more traditional architecture would provide for.

However, the utilitarian spiral remains untested by actual experience, and, so long as we have no other solution of proven merit, the economic and other factors that have just been discussed must be taken to weigh

Fig. 4

heavily in favor of planning a spreading network of museums of deliberately limited size, strategically placed throughout the urban and suburban areas, rather than a single, centrally located and expanding institution. But there are also qualitative considerations to be taken into account. Those who benefit most from the neighborhood exhibits will sooner or later reach the point where their further development, even as laymen, requires more than any unit of a more or less evenly dispersed establishment will ever be able to offer. And where could the scholars find satisfaction for their needs if there were no assembled collections like those of the Vatican, the Louvre, the British Museum, the Prado, the Metropolitan, and The American Museum of Natural History? These conflicting desiderata seem to point quite clearly towards a future solution for the museum problem that will be quite similar to the system of large central reference libraries with smaller local branches[3] that has already become familiar in most of the metropolitan regions of the world. Perhaps these comments may seem remote from our subject, but, though we may be called upon only to plan the first gallery, it is well to pay heed to all the thoughts and circumstances that may shape the future of all museums in the community, including the one of our own creation.

Many secondary and mundane considerations devolve upon the choice

[3] For further remarks on branch museums, see Rea, *op. cit.* pp. 173–174, and Parr, "Why Children's Museums," CURATOR, vol. III, no. 3, 1960, especially pp. 235–236.

Fig. 4. Chicago Natural History Museum. Thirty-eight stairs lead up to main entrance.

of location, with consequences impinging upon the architectural problems. It would be an unforgivable mistake to plan a future museum in any part of the world today without ample accommodations for private cars and for buses or other special public vehicles to the extent of all reasonable demands within a foreseeable time to come. In central metropolitan situations such as that of the Louvre in Paris, the Museum of Modern Art, or the Central Reference Library in New York, any insistence upon space for separate individual conveyances may well be treated as spurious or unreasonable, but buses bringing groups of visitors from schools or outlying districts create problems even there, which scarcely any museum has as yet resolved. In a network of urban neighborhood museums the vehicular problem would be likely to be at a minimum, although not non-existent. In stately locations and suburban environments the genuine needs are great and rapidly growing, but fortunately often amenable to solution within the natural horizontal dimensions of the plot instead of the structural vertical dimensions of the architectural plan.

Other facilities for comfort and pleasure conveniently available outside in the immediate surroundings also affect the inside needs of the museum. It is extremely difficult, at least in America, to operate a one-meal restaurant of a quality and atmosphere appropriate to the dignity of a cultural institution without experiencing a substantial loss, particularly when the only meal that can be regularly served is lunch. In a central location the need of such service within the museum can be eliminated entirely, but this is, perversely, also the situation in which the loss can be most easily converted into a substantial profit, particularly if the architectural plans make the restaurant a link between the inner and outer worlds, equally visible and accessible from both. The public relations value of a good and attractive eating place is also an important asset that may well warrant some expenditure, if loss cannot be avoided. In the museums that already exist there is, by and large, perhaps no problem that has been so badly neglected or mistreated architecturally as the problem of how to feed the visitors with dignity, pleasure, comfort, and convenience. Let us hope that the architects of our future institutions will be able to do much better. Looking ahead, one must also be forewarned that as the museum habit spreads the demand for a quick and inexpensive snack will grow even faster than the need for a more comfortable meal, and this is a demand that will also have to be met in a manner commensurate with the cultural status and esthetic standards of the museum. This presents even more difficult architectural and administrative problems than those of traditional restaurant service, and such problems are already pressing hard upon many museums, particularly those in stately locations.

Museums commonly take an ambiguous attitude towards other establishments competing for the idle hours of the public. They deplore the

competition of "less worthy" attractions at the same time as they refuse to accept it and do not seek to realize the genuine advantages that such "competition" might offer. If we wish the museum's influence to be widely felt, the lack of other enticements in its immediate vicinity may actually be a severe handicap. A knowledge that there is nothing else to turn to if the museum should disappoint, or when museum fatigue sets in, is not encouraging to potential callers, and perhaps even particularly not to those who have already had some experience with the strains of a museum visit and with their own ability to endure them. It is one of the great weaknesses of stately locations that they almost force the public to think in terms of "sacrificing" a day, or at least an afternoon, for a visit to the museum, with no other pleasures within reasonable reach, when their museum appetite has been satisfied. These observations have a direct bearing upon questions of museum architecture because it would serve little purpose if we were to decide that our museum ought to be where the crowds drift by and did not also endeavor to give it a façade that would tempt a multitude to enter.

Architecturally the museums are undoubtedly the scions of palaces, and palaces descended from castles. The functions of the ancestral forms were not to invite and reveal but to repel and seclude. In their architectural mien even the most modern museums of today are generally true to the traditions of their lineage, however little their architectural features may retain of the family resemblance. It should be just as natural to enter a museum as it is to enter a store, a bank, or a bakery. Nevertheless, I venture the opinion that, for example, the plaza and ground floor of almost any of the attractively designed new commercial buildings on Manhattan Island would offer a more inviting approach and entrance to a museum than any museum in New York can boast of presenting today, whether it be ninety years of age or only two years old. We must demand of the museum architecture of the future that it reverse this relationship, or, at least, remove our handicap. Our appearance should be gay without being frivolous, informal without being inelegant, and seductive without being undignified.

Among the many forbidding aspects of traditional museum architecture is the prevalence of exterior stairways for the visitor to climb before he can reach the august sanctuary of his destination. These status symbols of devotion to the higher things in life would seem to have gained special and unusual currency among the designers of museums until quite recent times. Although there may also be lesser entrances giving easier access to the venerable precincts within, the condescending hauteur of stairs reaching down into the outer world remains the dominant architectural expression of the façade that is turned towards the public.

Few other establishments have indulged themselves in this particular

continued on page 316

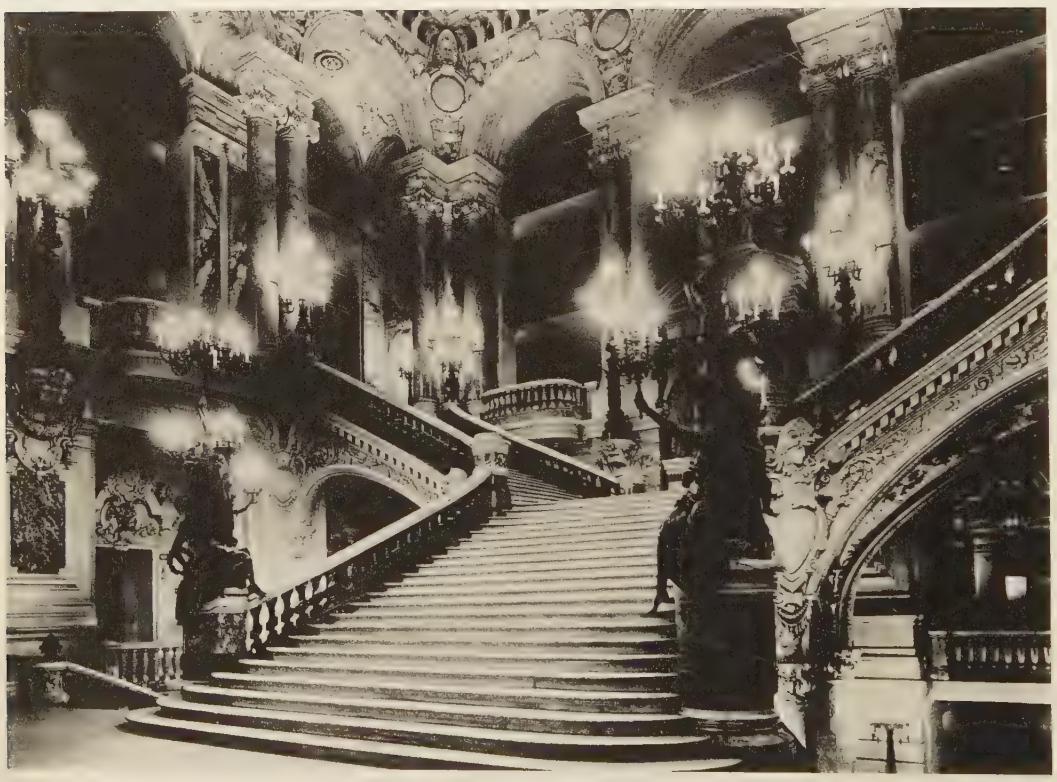


Fig. 5. Main façade and interior grand staircase of the Paris Opera.

Fig. 6. Republic National Bank of Dallas, Texas: entrance façade; interior stair and escalator.

form of conceit. Even a century or so ago, before most of the staircase-adorned museums that confront us today had yet been built, other fine edifices, such as opera houses, theaters, and the great magazines of commerce, seeking to attract the public into their halls and passages, generally had the courtesy and good sense to take you inside and give you shelter before offering you the challenge of their awesome grand staircases. And the same thing will be found in the most modern of commercial establishments faced with a need to conduct their business above the level of the sidewalk. The new Republic National Bank of Dallas may serve as a fine example.

The peculiar addiction to exposed and ostentatious stairways so prevalent among museums is difficult to justify on any rational basis, but perhaps fairly easy to explain when we remember that the temples of antiquity must be included with the palaces of later centuries in the ancestry of museum architecture.

While many museums have now come down to the ground, it is very doubtful that they are actually catching up with commercial structures in the development of a friendlier and more relaxed architectural approach to the public. The museums have moved, but others have moved faster. Pictures may serve better than descriptions to illustrate this point.

The new branch of the Manufacturers Trust Company in New York may be said to have dropped all visual barriers between its engaging interior and the passers-by on the sidewalk, drawing their attention with the attraction of an unfenced public garden.

The style of the market place would, as a rule, not be directly applicable to the design of a museum. But the very modern building of a department store in Denver would seem almost equally ideal for the display of a museum's treasures and for the sale of merchandise. A completely glass-walled low annex, with the main entrance to the entire establishment, reaches out into the public plaza, like a welcoming hand holding forth to covetous eyes samples of the hoard to be found within. The well-proportioned bulk of the main building is windowless, except for a frieze of display windows at ground level, extending the invitation of the annex. A museum could move right in and be very happy with its premises, and museum planners might learn a lot from buildings such as these.

When I express myself somewhat unenthusiastically about the merits of currently modern museum buildings, I wish to make it perfectly clear that I have the greatest esteem both for the esthetic qualities and for the functional advantages of many of the edifices I have specifically in mind, and that I would not presume to criticize their architecture any more than I would criticize the beauty of Mont Blanc. I merely wish to suggest that the top of Mont Blanc is no place for museum exhibits.

We have talked of central versus other locations as if the center of daily

Fig. 7. Museum of Modern Art (above) and Whitney Museum of American Art (below).

life in a community were easy to find and would always remain where we found it. There are cities in which topographic features or man-made landmarks make it difficult to imagine any extended shift of the center of activities, but there are other municipalities that have experienced a continuous movement of their dynamic centrum almost from the date of their founding. If there is no assurance of permanence for the advantages we seek in whatever type of location we choose, it is difficult to avoid the unpleasant duty of questioning the palatial tradition of permanent edifices which still reigns unchallenged in museum architecture. Perhaps the temporary concepts of utilitarian structures would serve us better in the long run than the immutable monumental conceits inherited from a world without toil. In the contemplation of this possibility we must not, however, lose sight of the fact that there are some museums that not only in their collections, but also in their premises partake of the character of national or cultural shrines. Even though they may not occupy historically hallowed ground, permanency of location and buildings can become an essential feature of their appeal and of the traditions they represent. The subject of such institutions will concern us again in another context. In the meantime we must inquire into the internal circumstances that may permit or prevent the mobility suggested by demographic considerations. In this connection the functional relationship between exhibits and study or storage collections is a matter of great importance.

In a natural history museum the fish we display to the public is preferably and usually only a cast or a model, costlier and more valuable for its purpose than a true specimen, but not of the slightest usefulness to the scientist, who bases his research on the storage collections. While no man can pretend to know the problems of all kinds of museums, certain conclusions are so obvious that one need not hesitate to draw them. In a gallery of art we certainly expect to find exhibited the best and most important, perhaps even all the Cezannes, Gauguins, or Rembrandts in the collection. To an outsider, at least, it therefore seems obvious that the paintings shown in the public galleries of a Louvre or a Metropolitan Museum must always remain a primary part of the scholarly treasures of these institutions regardless of whether they also keep other collections of secondary rank in study reserves. This is a condition diametrically opposed to that which obtains in the relationship between exhibits and research specimens of fishes in a museum of natural history, as we have already

Fig. 8. Fifth Avenue office of the Manufacturers Trust Company. The optical fusion of inner and outer space, enjoyed by the eye at all times, is best seen by the camera at night.

Fig. 9

seen. Judging by the actions of some museums of art, there may even seem to be room for doubts about whether it actually is desirable for these institutions to keep large collections of secondary examples of the pure arts in storage, withdrawn from public view, although other categories of objects which also have an ethnographic, archeological, or technological significance must undoubtedly be retained for scholarly purposes in larger quantities than could possibly be placed on parade before the general public. Depending upon the subject and the objects of a collection, all kinds of intermediate situations between the two represented by art museums and by museums of natural history could also be described, but there is no need to go into the details for the purposes of this discussion. It might be mentioned, however, that in many of the general or special

Fig. 9. May-D & F department store in Denver, Colorado. General view.

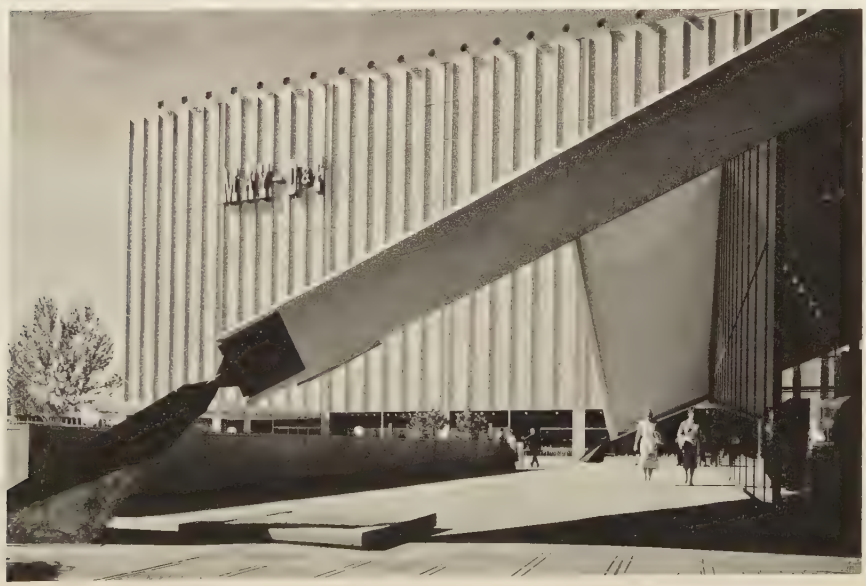
Fig. 10. Detail of May-D & F department store.

museums of industry and commerce there would seem to be a deliberate avoidance of accumulations that cannot be put on view.

It is, of course, a matter for each museum to determine its own needs of study collections not on exhibition, and to decide upon the feasibility of divorcing and widely separating storage from display. But it should be pointed out that the creation of large repositories for scientific research collections in less expensive locations remote from the metropolitan locales of exhibition halls has been seriously suggested several times. It is also difficult to avoid a slight suspicion that one might find some museums that have already acted upon the idea, but have made the mistake of bringing the exhibits along with the research collections into regions where few visitors will venture.

The architectural requirements of storage and display are, of course, completely different; and the movement of a storage collection, at least if it is the kind of research collection with which I have experience, is actually a far more formidable task than the reinstallation, modernization, and replacement of exhibits in a new location. When we try to envision the future I would therefore strongly suggest that we should always give careful consideration to the possibility that the enduring needs of a museum might best be met by a dual rather than a single architectural solution of its problems. Storage and laboratories may, without practical objections, rise to great heights like the stacks of a library, and the obtrusive columns of traditional cubicular architecture create no difficulties.

Fig. 10



Nor would this unit of the museum complex ever be in danger of outliving its usefulness because of socio-economic changes in the environment in which it was built. It may therefore be quite logical to consider a far more lasting structure for storage than we plan for display, regardless of whether the two be connected by corridor or only by common carrier.

When we speculate upon the possibility of impermanent shelters, at least for the exhibition aspects of museum functions, we think of financial rather than physical mobility, of frugal rather than prodigal styles and methods of construction that will never make it economically unthinkable to abandon old quarters for new. The idea may not be very appealing to most architects, but it may, in this connection, be well to remember that progressive museums today use architectural services in two quite different fashions. The architects who devise the endless transformations of museum interiors that are required to meet the changing needs of new exhibits or of evolving display techniques must be satisfied to seek fulfillment in creations as ephemeral as the products of the stage designers' art. There is scarcely any compelling reason in justice to yield to their brethren who plan our exteriors the privilege of burdening our future with personal monuments as permanent as the Pyramids.

The degree of impermanence that can reasonably be contemplated according to prevailing circumstances is, of course, relative. Ideally the exhibition buildings of any museum must, of necessity, last much longer than the temporary pavilions of international expositions, but not so long as the Tower of London, and perhaps only rarely quite so long as the Crystal Palace.

An architectural form that is equally adaptable to temporary and to permanent locations and purposes is already available in the geodesic dome. The weather-controlled greenhouse, or Climatron, of the Missouri Botanical Garden in St. Louis is the largest and most spectacular example of geodesic construction. Museum designers will do well to bear in mind the practical and esthetic effectiveness of this airily impressive edifice. It is also of interest to note the independently developed similarities of the exhibition plans for the living plants in the Climatron, and for the artificial habitats in the ecological halls of the proposed new Natural History Museum of the National University of Mexico.

In regard to both physical and psychological demands upon the design of exhibition space we also find extreme differences beyond possibility of universal generalizations. Perhaps it is in the museums of science and industry

Fig. 11. Climatron greenhouse of the Missouri Botanical Garden in St. Louis, by day and by night.

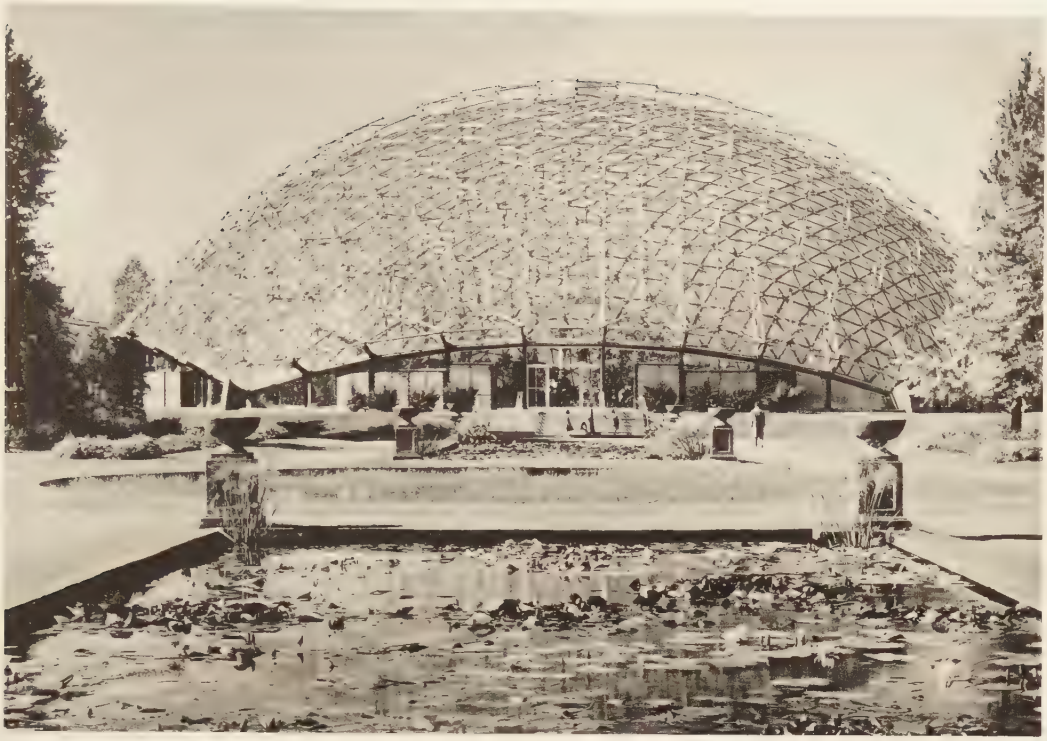


Fig. 11

Fig. 12. General plan of ecologic botanical exhibit in Climatron.

Fig. 13. Interior of Climatron of Missouri Botanical Garden.

Fig. 14. Interior of Climatron, with entrance to under-water passage.

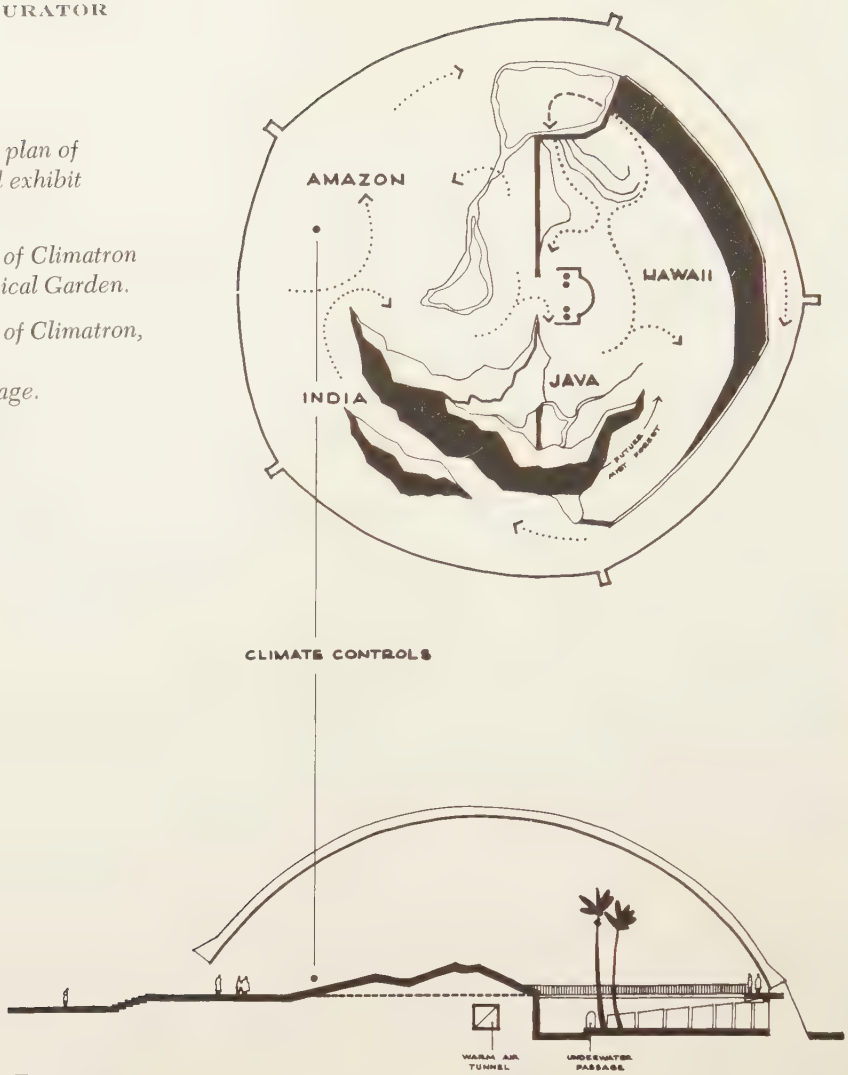


Fig. 12

that we encounter the very highest need for unencumbered flexibility. It is impossible to foresee either the physical dimensions or the social importance of the paraphernalia and products that may be developed in any field of the pure or applied sciences within an extremely short span of years. From a small laboratory experiment major industries and giant equipment may evolve within a decade. The architectural requirements for the public demonstrations of these developments are entirely unpredictable, except to the extent that the expectation of the unexpected has become axiomatic. The vast, unobstructed expanse of the Palazzo delle Esposizioni of Turin would seem the finest resolution to date for the problems of protean uses of space, which do not merely call for maximum freedom from immovable obstacles,

but also require complete emancipation from imperious elements of interior decor that would defeat any plan to fit the style of each exposition to its own particular purpose and content.

A comparison between the design of a theater and that of an exhibition hall is not without interest. In the playhouse all permanent architectural embellishments end at the proscenium arch. The space behind is structurally unadorned for the free exercise of the state designer's art in changing pageants. It would be quite unthinkable to have the style of the auditorium extend onto the stage, so that "Aida," "Carmen," and "Madame Butterfly" might all have to be performed among the columns and pilasters of theatrical baroque. But in the museum there is no separation between stage and parquet. Spectacle and spectators are completely intermingled, and it is not unfair to say that the main entrance to the museum is its proscenium arch. To the extent that flexibility is a desideratum, the architect's responsibility towards museum interiors is therefore simply to provide space for the exhibition designer's use, with maximum freedom from physical and esthetic impediments.

Fig. 13

Fig. 14

Fig. 15

Fig. 16

In natural history museums the subjects and methods of exhibition may change more slowly than they tend to do in the museums of the exact sciences and their technologies, but the rate of change is still fast enough to make the durability of premises a perplexing dilemma within the span of a lifetime. To an outsider, looking in, it might seem as though the museums of art could enjoy the benefits of certain stable features of many of the objects they collect, although certainly not of all. For such a person it might seem conceivable that a gallery for the display of paintings could be so brilliantly designed that it would never lose its usefulness or the timeliness of its appearance. But this must be for others to speak of, with real knowledge of the needs of art museums.

Finally we come to institutions blessed with the knowledge that it will always be their task to continue to display the same objects that they show today. Historical houses fall into this category, but these do not concern us here, since their architecture is an already given feature of the specimen itself and not a problem of its shelter. But, as an example actually pertinent to our discussion, we may consider the Viking Ship Museum at Oslo. These ships were originally buried with the chiefs who owned them and sailed them. When the ships are disinterred in the cause of historical and archeological research, the museum designed to hold them forever after will, in the eyes of the perceiver, unavoidably acquire some of the hallowed qualities of a sarcophagus. This preconditioned attitude of the visitors can be used to great advantage to endow a building of unusual permanence with a sense of solemnity and with a closeness and specificity of esthetic harmony between contents and architectural container, which would involve an unpardonable restriction of flexibility in museums of more changeable import and intent.

Let us hope that the museums of the future will differ as much from one another as from the museums of today, and that in their differences they will explore and exploit all the architectural possibilities that lie between the temporary shelter of a geodesic dome for rapidly changing needs and the solid, ceremonial forms of a Pantheon for objects sacred to the history of a people or a cause. Among the many solutions that may lie within this broad range of possibilities, probably the most exciting one already suggested today is that of the proposed new museum of natural history for the University of Mexico described by Alejandro Caso elsewhere in this issue of CURATOR.

Fig. 15. General view of the Viking Ship Museum, Oslo, Norway.

Fig. 16. Views from opposite ends of same ship in the Viking Ship Museum.

Three Interesting Walks

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

As a museum grows in size, the problems and perplexities of exhibition design do not multiply at an even rate, but move through critical phases between levels of increasing complexity. In the limited space of a modest room or two, one is entitled to rely upon the interest of the objects themselves for the gratification of the visitor's expectations, if there is any point in showing these objects at all. Even the use of good taste and imagination in the arrangement of the exhibits is more a matter of professional pride and the satisfaction of the curators' own creative urge than of the fulfillment of any need strongly felt by the public.

When a couple of rooms become a couple of halls, the multitude and diversity of objects that may come within the field of vision at any time make it essential to resort to the arts of display in order not to impair the natural attractions of the individual items by the distractions and discouragements of confused or displeasing arrangements. When the objects are well displayed, however, the museum of medium size may still feel justified in relying upon the contents of its exhibits to provide the pleasures and satisfactions needed to make a visit among its treasures a rewarding experience every step of the way, pleasantly remembered without reservations.

But when the museum begins to count its halls in two figures it faces a quite different problem. It can no longer take it for granted that all visitors will find something of interest in every object or even in every hall they see.[1] On the contrary, the exhibition designers of a large museum must act on the assumption that no visitor can be interested in the contents of every hall he will wander through during his visit.

When we think of the tours we have enjoyed through the cities and towns that have charmed us or fascinated us, we realize that, even though

[1] See Parr: Mostly About Museums, p. 43, The American Museum of Natural History, 1959.

every minute was a pleasure, we were actually not interested in every window, every house, or even every block that we went by. If our delight in the trip was unbroken between "points of interest" it was due to the integration of details into a larger pattern of enchantment, in which even the relaxation of dull moments became an added source of gratification.

What many of the communities of the world have achieved by the accretions of natural growth, the very large museums must try to accomplish by an over-all exhibition plan that goes beyond the problems of the best presentation of the museum's objects and subjects, in order to provide for a pleasant and diverting walk through all the exhibition areas, even those where the actual exhibits hold little or no interest for a particular visitor. The need to create this sense of an enjoyable tour through the entire museum, as a whole, as well as a pleasing and profitable time spent with the particular exhibits of one's choice, adds a new dimension to the problems of showmanship in a large institution.

The condition described as a dire necessity of the large museums does, of course, also represent a desirable state for the smaller institutions. It is therefore not surprising to discover that the most interesting walks *per se* still seem to be found in museums of medium rather than maximum size. While their need is less pressing, their problems are more manageable and therefore more encouraging of ambitious effort. It may be of interest to examine some outstanding examples in which the over-all experience of a museum visit takes on a character and quality of its own, over and above the sum of all pleasures and satisfactions obtained from individual halls and exhibits.

Louisiana is an architecturally unique art museum in Humlebaek, Denmark, opened in 1958. Apparently the creation of a scenic tour behind glass was not a primary intent. The museum was endowed with a fine residence in a large and beautiful park (Fig. 1). In planning new construction it was decided to place the main building, where the landscape offered the richest scenery, some 200 to 350 feet away from the existing residence, which was to be used as an entrance pavilion. In working with the problem of how to join the new and the old structure (Fig. 2), the architects[2] discovered that the long glass corridor that became the connecting link in itself gave a new quality to the park, making a walk through the grounds part of the visitor's experience within the interior of the museum.

[2] Bo, Jörgen, and Vilhelm Wohlert. *Mobilia*, vol. XXIV, no. 38, September, 1958.

continued on page 65

Fig. 1. General ground and floor plan, Louisiana.

HUMLEBÆK
POND
THE SEA
ØRESUND

Fig. 2. Aerial view of Louisiana.

Fig. 3. From the first corridor gallery, Louisiana, with great beech.

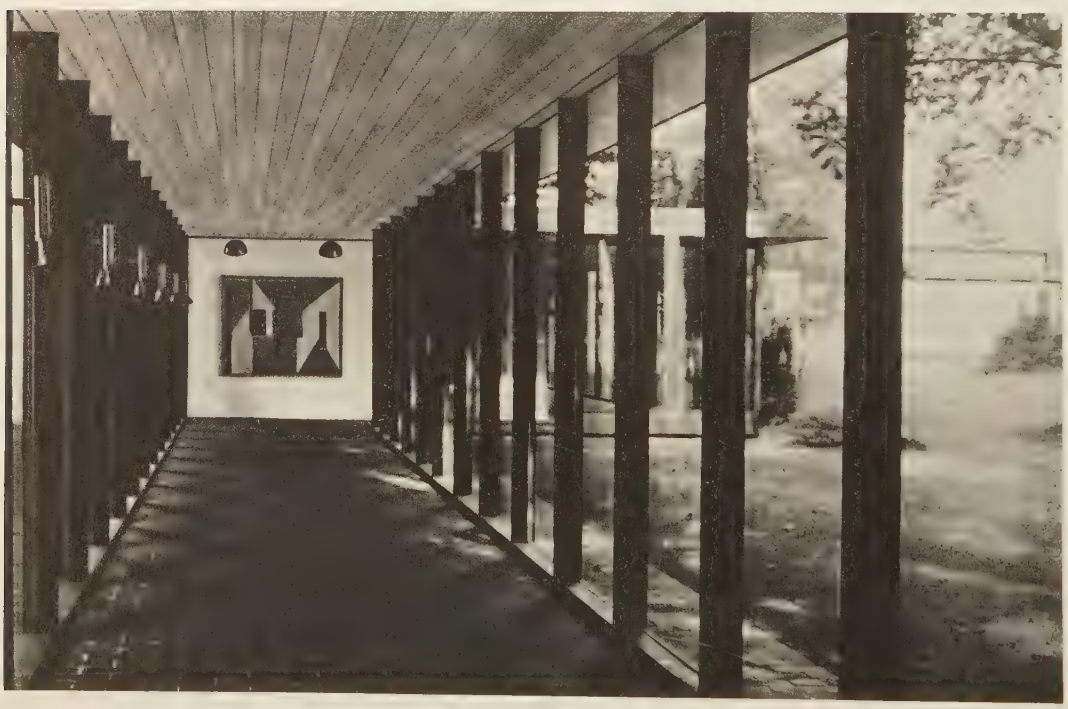


Fig. 4. Glass corridor, Louisiana.

Fig. 5. View from glass corridor, Louisiana.

Fig. 6. The tall Larsen Stevns gallery, Louisiana, with Humlebaek Pond.

Fig. 7. A side-lighted gallery with movable screens, Louisiana.

Fig. 8. Pool and gallery windows, Louisiana.

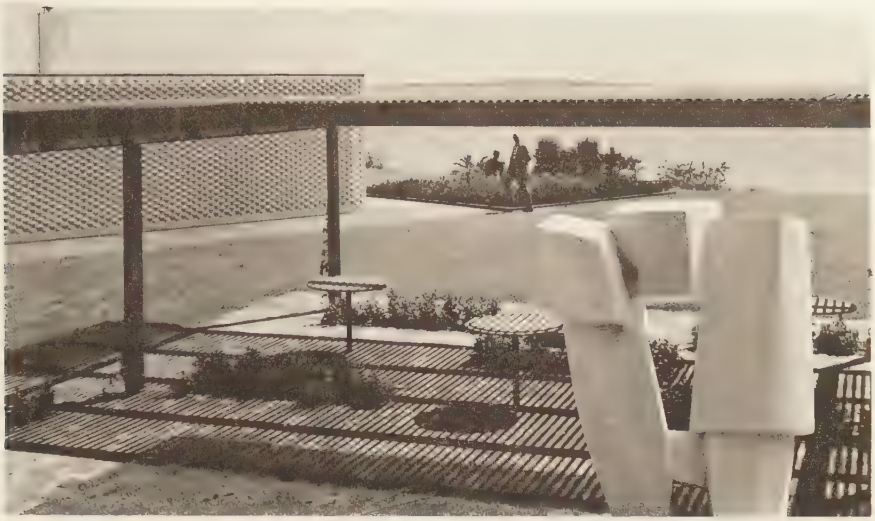


Fig. 9. Looking to the sea, Louisiana.

There can scarcely be any question that the exhilarating sense of physical adventure within the confines of a museum achieved by the designers of Louisiana would probably be impossible to surpass and difficult enough to equal. But there may well be reason to wonder whether the adventure stimulates art appreciation or rather diverts attention from the art that is shown.

In Louisiana the bracing change of pace and prospect within the halls depends even more upon the changing scenery of the outward view than upon the inward vistas of the exhibits. The natural features of the environment have been brilliantly and dramatically used. The base of a giant beech tree (Fig. 5), open greensward, woodland, a natural lake (Fig. 6), an artificial pool (Fig. 7), and a view of the ocean (Fig. 8) are among the sights that draw the eyes towards the "picture windows" rather than the pictures. On a normal path from the entrance to the charming restaurant at the other end, the visitor will be enchanted by a view of nature on, at least, one side of his route, over more than three-quarters of its length. It is also the richly varied landscape rather than the less unpredictable variations of display that supplies the strong element of surprise which, again and again, enlivens the change of pace. When entering Louisiana it is impossible to anticipate the scenery that will unfold through its glass walls. The statuesque solidity of a huge tree trunk on the right does not prepare one for the gentle beauty of a quiet little lake soon to appear far below on the left, nor does the natural pond in any way suggest the thought that a formal pool on high level might follow later.

Those who have been lucky enough to enjoy a walk through Louisiana will probably all agree that it was a unique and delightful experience, well worth repeating on every opportunity. And, if it is repeated often enough, recollections of the art that is there to be seen should ultimately find their place among the cherished memories of pleasant hours in beautiful surroundings. But it may be difficult for the average visitor to "feel the constant interplay between God's abstractions in the park and the human ones in the rooms"[3] except as a competition for attention, which an uncharitable jester might be tempted to allude to as the old struggle between God and the Devil.

It would obviously be a very rare exception indeed to have the art on the walls and the view through the windows of Louisiana stand in the relationship to each other of model and rendering. The images perceived will normally be from unrelated contexts. One does not supplement, interpret, extend, or illuminate the other. But these reservations about a particular application of a new concept of museum design must not prevent us from seeing its tremendous and exciting possibilities for the presentation of subjects that would permit the views of the outside world to play an in-

[3] S.E.M. *Mobilia,* vol. XXIV, no. 38, September, 1958.

Fig. 10. Museo dell'Automobile Carlo Biscaretti di Ruffia in Turin. Main façade with pedestrian and vehicular passage to interior court and main entrance.

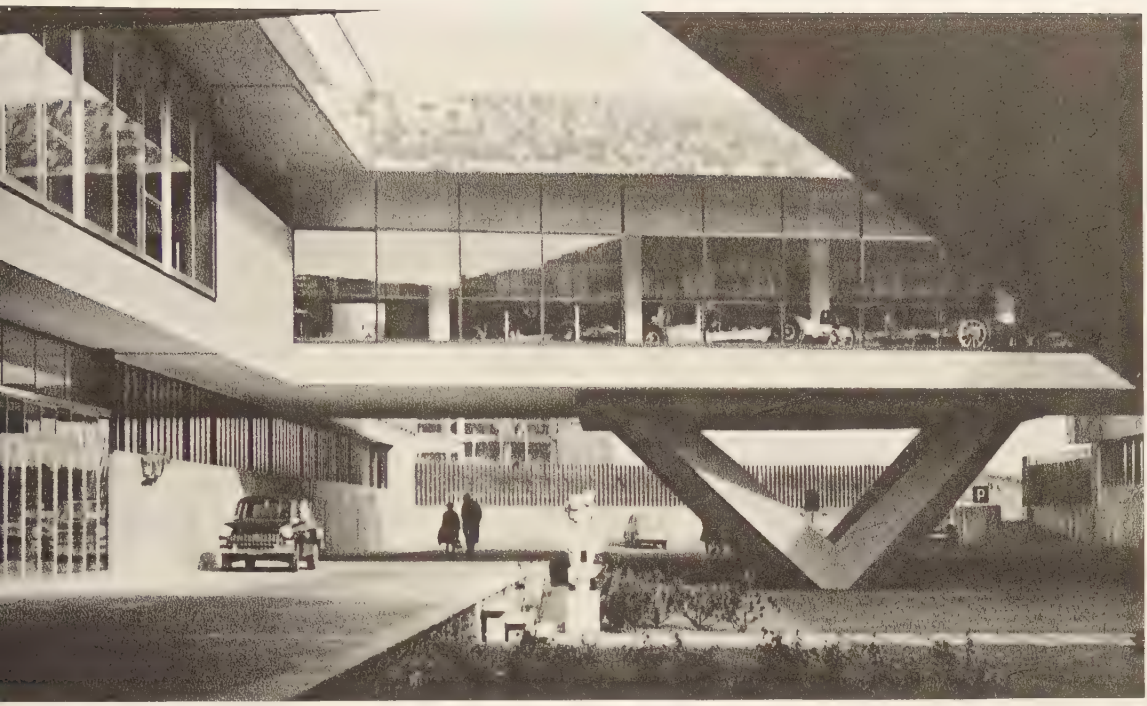


Fig. 11. View of interior court of Museo Biscaretti di Ruffia in the evening.

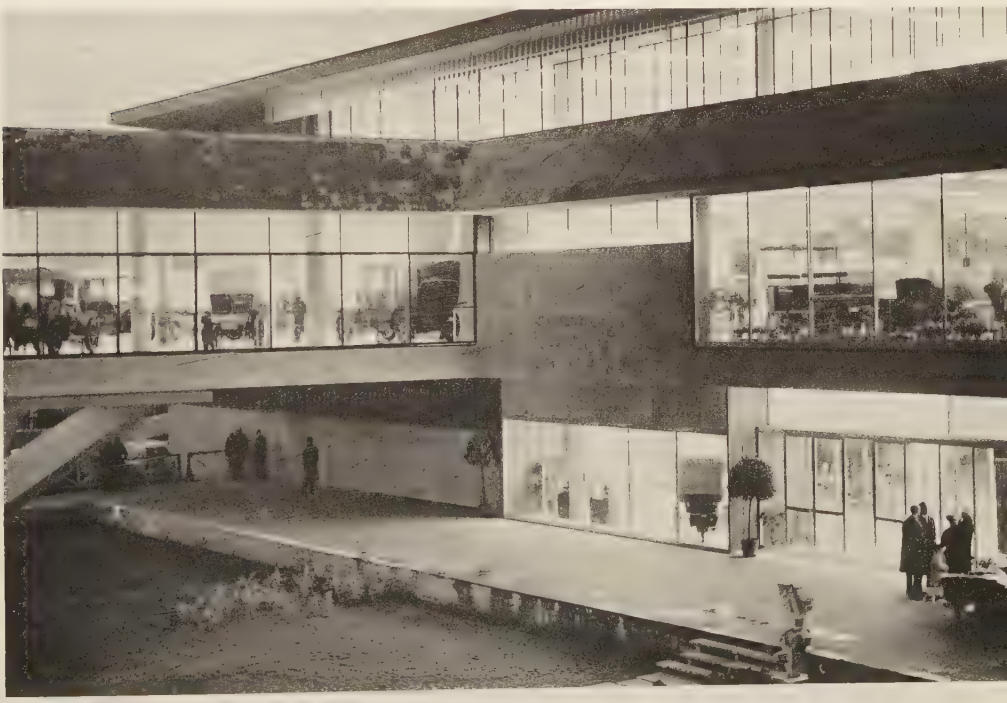


Fig. 12. View of interior court of Museo Biscaretti di Ruffia seen by day in the opposite direction of Figure 11.

Fig. 13. Main stairway in Museo Biscaretti di Ruffia.

Fig. 14. Great hall of Museo Biscaretti di Ruffia.

tegrated role in the interior exposition. One may envision a National Parks Museum on the Louisiana plan strung along a promontory overlooking the Grand Canyon of the Colorado, with exhibits illustrating and explaining the natural history of the panorama. Or a maritime museum at Langelinie overlooking the ship yards and traffic of the busy seaport of Copenhagen. Or a museum of the history of Genoa, or Bergen, or San Francisco looking down upon its subject from a hill. The dramatic and educational potentials of the Louisiana plan are immense, whenever the subject and the location are right.

Museo dell'Automobile Carlo Biscaretti di Ruffia, opened in Turin in 1961, uses methods entirely different from those of Louisiana to create the setting for a walk of great pleasure and interest even to one not particularly interested in the evolution of the automobile. The element of surprise is minimized. Museo Biscaretti di Ruffia offers a splendid view across the river Po through the windows of its great hall. But the panorama has already become a familiar sight from road level on the way to the museum, and the promise of a slightly better view from higher levels is obvious from the outside of the building. It is this lack of surprise that makes it possible to see the beautiful scenery beyond the windows only as a delightfully decorative background, rather than a distractingly dominant feature within the halls. An exquisite balance of such opposed influences is subtly maintained throughout.

To reach the main entrance of the museum the visitor first walks or drives through a passage beneath the majestic curve of the main façade (Fig. 10). He thereupon crosses an open court surrounded by floor to ceiling window walls, revealing the exhibition areas to his view (Figs. 11 and 12). The visitor is thus allowed to acquire a very good orientation in the general layout of Museo Biscaretti di Ruffia and a broad but clear impression of what he may expect to see, even before he actually enters the museum. The choice of arousing informed expectations among the arriving spectators instead of merely exciting their curiosity about the unseen could, in less skillful hands, easily have lessened the dramatic impact of a tour through the museum as a whole, however helpful it might be to those who come solely to observe individual objects on display, without much attention or response to the setting in which they are presented. In Museo Biscaretti di Ruffia this danger has not materialized. The open flights of the main stairway (Fig. 13) seem a cheerful temptation to ascend. The architect's use of simple lines and cleanly exposed structural elements harmonizes perfectly with the rigorous geometric discipline of machines and machine-made forms. To the writer, at least, the bold zigzag truss, resting the upper façade on four points of support (Fig. 14), adds a pleasant and fascinating rhythm to the appearance of the Grande Salone. All in all, even a visitor without special enthusiasm for the auto-

continued on page 76

Fig. 15. Museu de Arte Popular. From Hall of Douro and Minho provinces (1).

Fig. 16. Museu de Arte Popular. From Hall of Douro and Minho provinces (2).

Fig. 17. Museu de Arte Popular. From Hall of Tras-os-Montes Province.

Fig. 18. Museu de Arte Popular. From Hall of Beiras Province.

Fig. 19. View from other side of the half partition on the left in Figure 18.

Fig. 20. Museu de Arte Popular. Hall of Estremadura and Alentejo provinces.

Fig. 21. Museu de Arte Popular. Other side of central installation in Figure 20.

Fig. 22. Museu de Arte Popular. From the Hall of Algarve Province.

Fig. 23. Museu de Arte Popular. From the Hall of Algarve Province.

mobile is likely to leave Museo Biscaretti di Ruffia with enjoyable memories of expectations aroused and satisfied in the course of a very interesting walk.

A stroll through Lisbon's Museu de Arte Popular is not easily forgotten, regardless of how the minutiae of its sights may fade from memory. This museum occupies a superannuated, but still very pleasant, temporary exposition building left behind by an international fair. It permits no peek into its interiors before entering the premises, and does not encourage contemplation of the exterior scene from within. The windows are designed and used for illumination rather than pictorial decor and occupy a much smaller fraction of the total wall space than in either Louisiana or Museo Biscaretti di Ruffia.

The exterior architecture of Arte Popular may kindle curiosity but generates no identifiable expectations. The interior spaces are well proportioned and advantageously arranged, with balconies, balustrades, and stairways contributing to the diversity of perspectives within. But it is primarily the excellent taste and display artistry of the staff which make a visit to Museu de Arte Popular such a stimulating and delightfully memorable experience. One does not ramble past the exhibits. One walks among them. For a little while they become part of one's life in a far more intimate sense than other museums seem able to achieve. And the scenes and styles keep changing from hall to hall at just the right pace to keep the appetite keen for new impressions. It is impossible to convey in words the charm of a tour through Museu de Arte Popular, but perhaps a slight feeling of its fascinations may be gained from the figures.

The three museums that have here been called to mind have in common that the over-all reward of a visit is much greater than the sum of the pleasures that the individual exhibits may give, and that, indeed, it is not necessary to be particularly interested in any detail in order to enjoy a gratifying experience of the whole, any more than it is necessary to be a naturalist in order to appreciate a walk in nature. One institution achieves its total effect primarily through brilliant architectural exploitation of the exterior environment, another by a perceptive and skillfully planned interplay between architecture and contents, while the third relies principally upon an engagingly sensitive and varied presentation of its objects. None of the plans and methods may be directly transferable to other circumstances, but a lot can be learned from each.

A Nice "Gooky" Exhibit

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

In the study of museums it is often advantageous to bring the family along, particularly if its other members do not harbor any ambitions to walk in your footsteps and therefore respond with the unbiased reactions of the uncommitted.

Some years ago we found ourselves in a hall of comparative anatomy in a foreign museum. The specimens were worn and tired looking and badly discolored. So was the liquid in which they were preserved. The glass containers were as objectionable as they always are, and the tedious arrangement in series or shelves was monotonous in the extreme. The light was poor. I expected only impatience and disgust, until I noticed the absorption of our youngest daughter, then in her teens. At last she turned to me with the question: "Why don't we have any nice 'gooky' exhibits like this in New York?"

The question struck a very responsive chord in my own sentiments, but any nostalgic prejudices I might entertain could be explained by reasoning that would not apply in our daughter's case. Her reaction, which would undoubtedly be shared by many of her age and intellectual curiosity, was therefore something to ponder upon. The reasons for the attraction this unprepossessing exhibit held for a person not predisposed in its favor were not very hard to find, but are altogether too rarely looked for in our modern craving for smartness and shining elegance.

One of the greatest weaknesses of the natural history museums is the artificiality of their biological exhibits. Curators can often be heard to extoll the virtue of showing the "real thing" in words that seem designed to create the impression that this is what their museums do. Nothing could be farther from the truth with regard to the manner in which we display the contemporary forms of living nature. In a habitat group only the pelts, horns, hooves, or claws of the mammals, and the feathered portions of the skin of the birds, can be absolutely relied upon to be what they seem to be,

though fur and feathers may have had to be retouched with artificial coloring. Even the teeth of the mammals and the bills and feet of the birds may be fakes in the most progressive museums. Virtually all the vegetation and most of the rocks are likely to be home made. But in a habitat group the artificiality is not so objectionable. We accept the realism of the image without any need to be fooled by the parts that produce it, just as we accept the realism of a painting, fully aware that it all came out of the tubes in the artist's paint box. It might be amusing to try to analyze the illusion of an illusion apparently cherished alike by spectators as well as curators of habitat groups. But that topic would belong in another context.

It is when we move on to exhibits dealing with individual organisms, including man, their organs and bodily functions, that the artificiality of what is shown really begins to pall. As each specimen adds to the awareness that everything to be seen was made for exhibition only, and has never existed for any other reason or purpose, a certain degree of indifference becomes unavoidable in even the keenest enthusiast about the subject matter illustrated by the display. It is as if the artificiality of the means of communication had erected an icy barrier between those enjoying the search for new knowledge and those attempting to learn about it. Even if the thought is not consciously articulated in the mind, a feeling develops that the visitors are not really permitted to share the confidence and the treasures of science, or truly to enjoy a spectator's participation in the pleasures of scientific discovery. Even the least sensitive may begin to sense, however vaguely, that science is actually not inviting him in, but keeping him out with carefully planned and cleverly executed substitutes for the "real thing," deemed more appropriate for a layman's unsophisticated capacity for appreciation.

This is not to be taken as an argument against all the splendid models and other illustrations that always have been, and always will continue to be, absolutely essential for the teaching of biology. But let us try not to go on forgetting, as we have so often done in the past, that tidiness of appearance does not necessarily increase the appeal of an exhibit, or its ability to communicate, and may, when overdone, actually lead to boredom instead. And let us therefore take advantage of every opportunity to inject moments of more intimate contact with the actualities of the scientific workshops into our didactic exhibits, so as to maintain as much as possible of that sense of participation which is undoubtedly the feeling our daughter expressed when she voiced her wish that there might also be some nice "gooky" exhibits in her own home town. And we should not be too afraid of that "gookiness" which is in itself the best testimony to the fact that what we show was not made for show only.

Why Children's Museums?

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

Most museums, and probably all natural history museums, welcome children to their halls. Indeed they go to considerable pains to insure that even the youngest guests shall have a pleasant and profitable visit. There are no special public museums for adults—only general museums for visitors of all ages and backgrounds, from the tiny tot in a stroller to the centenarian in a wheel chair. Knowing this, we sometimes feel vaguely puzzled as to why there should, nevertheless, have to be separate museums for children. In the rush of our other cares we may not take time enough to examine the problem critically, and so are left with the faintly uneasy feeling of an unanswered question in our minds. That the answer should seem elusive to many of us who pursue our careers in the general museums is perhaps only to be expected. But sometimes one gets the impression that even those who have dedicated themselves to the cause of children's museums may remain slightly disturbed by the elusiveness of truly adequate reasons for the existence of their museums as a separate species. It is not unusual to hear the hope expressed that a children's museum may some day "grow up" to become a general museum.

Let us examine, first of all, whether the transition from children's museum to general museum is, or ought to be, simply a matter of growing up.[1] Putting the question in another way one may ask if the large general museum should, in fact, be considered a single organism or a symbiotic association of several different organizations with separate methods and purposes, but with enough common or complementary needs to make an affiliation seem mutually advantageous, at least at first glance.

The most obvious common need is the need for collections and exhibits.

[1] The author did not see Helen V. Fisher's essay "Children's Museums: A Definition and a Credo," in CURATOR, vol. III, no. 2, 1960, until the present paper was in proof. A reader of both articles will find several important points of agreement, which may be taken to represent confirmation by independent reasoning from different points of departure.

But even in this we find an inner conflict. The children's museum wants expendable collections and exhibits that its visitors can handle and actually wear out in use. It is the ambition of the general museums to display such unique and irreplaceable treasures and such superb and costly examples of the preparator's art that it becomes permissible only to admire the exhibits at a respectful distance, behind a protective shield of glass, or under close surveillance of human or electronic guards. This difference is actually quite fundamental. It brings out the fact that, regardless of what special consideration we may give him, a child in a general museum remains a visiting spectator at an adult show primarily designed for a less active age of spectator sports. This does not mean that a child does not enjoy or benefit from a visit to a general museum, any more than an adult can fail to learn and to derive pleasure from a good and active children's museum. Young or old, we are always fascinated by the interests and doings of the other generation and learn a lot from them. But our mutual fascination does not alter the basic differences in our ways of living and learning. What has happened in many of the large general museums offers perhaps the strongest testimony to the real difficulties of trying to serve all ages in a single operation.

Within New York City alone, we can find three very different examples of how its large general museums or the community that supports them has tried to meet the museum needs of both children and adults without sacrificing one for the other. In The American Museum of Natural History, which seems to have been the first institution to take practical steps in the matter, a Department of Public Instruction, with a staff of some twenty-odd teachers, functions quite independently of the curatorial departments and with equal status. Although the Department of Public Instruction also engages in some adult education, its primary duty is towards children of elementary and high school age. The teaching is based on the public exhibits of the general museum, but these are also supplemented by the department's own expendable collections, which are used for demonstrations and lectures. The Department of Public Instruction of The American Museum of Natural History may be described as a separately organized function of the parent institution, but not as a semi-autonomous subsidiary.

The Metropolitan Museum of Art has gone a step farther by establishing what virtually amounts to an institution within an institution in the form of a Junior Museum,[2] operated by the Department of Education and Extension. This Junior Museum has its own exhibition halls and functions more or less as a complete unit in itself, although visits to the general halls of the museum are, of course, included in its activities.

[2] See "A New Junior Museum" by Louise Condit, CURATOR, vol. II, no. 1, pp. 1–20, 1959.

Our third New York example comes from the Borough of Brooklyn. The Brooklyn Museum of today is a general museum of art which originally also included natural history. As the general museum evolved and changed its scope, the community took over the problem of the special needs of children by establishing the Brooklyn Children's Museum[3] as a separate institution in a separate but not distant location.

Finding that a special staff and program for children—a museum within a museum—and a separate children's museum have all developed in, or in the presence of, a general museum naturally gives rise to the thought that it may be even more logical for a large general museum to hope to grow up to become a parent or partner of a children's museum than it is for a small children's museum to hope to grow up to give birth to a general museum that may provide for the old age of its proud progenitor in a nice department of its own.

Such a diversity of arrangements within a single city also points up the problem of finding the best relationship between children's activities and the functions of a general museum. The practical advantages of a very close association are so obvious that they scarcely need to be mentioned. They include the availability of a more or less steady stream of surplus collections that can be treated as expendable materials for teaching, and of expert information up to a certain, actually quite limited, level of demand. Much less has been said about the practical disadvantages that are beginning to be heavily felt in some of the larger institutions. Some of these arise from purely quantitative rather than qualitative considerations, having to do with the number of visitors and the size of the institution.

As the total number of visitors grows, the competition for space is made more unpleasant by natural or imposed differences in the behavior of children and adults. One of the problems is the tendency of children to respond to increasing numbers of their own kind by increased noisiness and other forms of physical excitement. This can be observed wherever children gather together in groups, whether it be on a playground, at a birthday party, or in a museum. The knowledge that the noise does not spring from unkind or impolite intent does not lessen its distracting effect upon adult visitors, who may enjoy the exuberance of the children but will find it extremely difficult to pursue any serious interests of their own. It is quite true that the tendency towards noisiness and physical agitation among the children differs quite markedly from country to country, probably in direct relationship to differences in the generally prevailing attitude towards introvert or extrovert behavior at all ages, in different cultural traditions. It is also true, in theory, that needless noise can be

[3] See Helen V. Fisher in CURATOR, vol. III, no. 2, pp. 183–191, 1960.

avoided. So can many forms of death that still continue to claim their victims, although the incentive to avoid unnecessary death should presumably be much stronger than the incentive to avoid unnecessary noise. Some control can be exercised, particularly over the groups or classes that come under the supervision of the museum's own teaching personnel. But in an institution freely open to all, complete control is impossible, and the number of decibels increases with the number of young visitors, especially those who arrive in groups, of whatever description.

The problems created by the natural liveliness of youth are further complicated by conditions imposed upon the child as a museum visitor. In a metropolitan area the vast majority of the children visiting the museum come in classes or other forms of organized groups, with one or more adult leaders. The hazards of travel through a large and crowded city will, to most parents, make it seem quite inadvisable to send a child off on its own on a visit to the museum, unless it should be very near by. If for no other reason than this, organized groups become the predominant pattern for the presence of children in our exhibition halls. At first thought one might hope that this would be an ameliorating circumstance. On the contrary, it aggravates the problem. One hundred children filtering through a large hall one by one, or by twos or threes, do not disturb the usefulness of the hall for other visitors, any more than would an equal number of adults. But the same number of youngsters trooping from exhibit to exhibit around the same hall, in three compact formations of thirty to forty in each, make it virtually impossible for others to maintain any continuity and reasonable concentration in their own contemplation of what is shown. A clever and tactful group leader may reduce some of the objectionable aspects of group movements through museum halls but introduces others. A voice that must reach thirty or forty children cannot be excluded from the ears and minds of the ten or fifteen adults who happen to find themselves at the same spot in their progress through the museum.

In this century of the child and of the average man, there finally often develops, among those responsible for groups, a tendency to try to exercise a right of eminent domain in favor of their flock. This is true of all types of conducted tours. But in a museum actively promoting the organized education of the young, groups of children usually far outnumber those formed by adults and therefore present more of a problem. Being asked to give ground to a group before an exhibit in which one has a real interest is an experience that may be had on either side of the Atlantic, whether the request be put in simple words or less politely expressed in oblique remarks and glances.

If the detriment to adult visitors was always fully compensated for by benefits for the young, there would be less reason to object. In a large

museum this is, unfortunately, far from being the case. Out of moral obligation as well as necessity (at least diplomatic necessity), such an institution must exhibit far more than a group of children can profitably use in a day's visit, without merely developing mental constipation. If exhibits of the kind and quantity that visiting classes can use with maximum benefit are not gathered together and set up separately in a museum within a museum, at least, it follows that the groups wending their way between the displays selected for their attention must make long, fatiguing, and confusing journeys through exhibits that have no bearing on their lesson for the day, distracting and frustrating others en route, without benefit to themselves.

The existence of a real conflict between the child's need for a limitation of focus and the extent and diversity of the adult interests that must also be served by a general museum receives a left-handed recognition from the most ardent advocates of complete intermingling of exhibits and activities for children and for adults. The introduction to "Museums and Young People"[4] is described in the foreword as a most important chapter that "harmonizes and fills in the legitimately varying points of view of the other three writers." Nevertheless the introduction reveals its bias even before the start, by listing as its first chapter heading in the table of contents: "1. The Danger of Separate Children's Museums." There are neither headings nor subheadings dignifying a cursory treatment of the arguments put forward by those in favor of such institutions. This introduction will be quoted here at some length, because the present writer agrees that it is an important document, as stated in the foreword, and also a very revealing one. On page 4 we learn that the opponents of separate children's museums "admit at the outset that most existing museums are unsuitable for children. They are, however, equally unsuitable for adults—and for the same reasons. The setting up of separate Children's Museums therefore avoids the real issue, which is, how to change existing museums so that they become useful to adults and children alike." This statement, of course, expresses a very commendable ambition to which one could not take exception. But the claws begin to show on page 16, under another telltale heading: "Exaggerated Logic and Comprehensiveness in Exhibitions." We are told, among other things:

> We have already referred to the sense of achievement and satisfaction that can come to a museum visitor, and particularly to a child, who feels that he has worked through an exhibition and mastered its material; and yet this is a satisfaction that is very rarely catered for in museum displays. The paradox of the situation lies in the fact that this fault can usually be

[4] Three reports by Germaine Cart, Molly Harrison, and Charles Russell, with a foreword by Georges-Henri Rivière and an introduction by Peter Floud; published by the International Council of Museums in Paris, 1952.

> traced back to precisely this same need for completeness on the part not of the visitors, but of the arrangers of the exhibition. In fact, curators are allowed to indulge their own need for complete and comprehensive exhibitions, even if this means, as it almost certainly will, that the spectator is deprived of any chance of that rounded, digestible, self-sufficient exhibit, that would satisfy the same need in him.

The plot thickens as we go along, and on page 18 we learn:

> How much more satisfactory, however, even for school parties, are those general museums where the existence of miscellaneous collections has been used by the curator as a justification for dividing the galleries up into a number of *unrelated,* but compact, exhibits, each centered round some set of specimens in which the collections happen to be rich. Some fossils which would otherwise be thinly spread out in a vain attempt to represent the whole field of paleontology, are instead collected into a small exhibit illustrating "What are Fossils and Where to Find Them"; similarly, stuffed animals are no longer ranged along the walls in an effort to reconstruct the "Story of Life", but are used in small groups to represent such ideas as "How Animals Get Their Food." (Italics mine.)

We are also told that the compactness of such unrelated exhibits "will satisfy that sense of having learnt all about some subject—*however small*—which is such an important element in the enjoyment of learning," and that we must "get away from the over-logical, over-comprehensive, approach" which has been criticized, and must succeed in rearranging our collections "in more self-contained and *digestible* units." (Italics mine.)

The tenor of the argument is now clear. Because so many museums admittedly have failed or lost ground in their efforts to reach and to serve the not uninstructed adults, they should abandon the attempt and devote their possessions and their skills entirely to the service of the children and the "uninstructed." They must not try to teach anything that cannot be compressed into compact, digestible pills that can be swallowed in a single session. The great ideas and principles must not be taught because they might require several visits to the museum before they are understood, just as they might require several sessions in class or several lectures in college. Let us not tire our visitors by trying to show them the broad panorama of how all things are related in nature. Let us be unrelated. Let us tell not the story of life, only the story of how the squirrel gets its nuts. And, by all means, let us not bore our audience by exposing it to the rigid logic of science that governs both the structure and contents of all our scientific knowledge. The trouble is, of course, that one cannot be just a little bit logical, any more than one can be just a little bit pregnant.

Up to this point we have referred to the International Council of Museums report only to prove, in the words of the opponents of separate children's museums, that there is a very real conflict between the needs and methods of visual education for children and the form of presentation

in which a large museum must try to make its information available to an adult public with broader and more varied interests, wider perspectives, and greater concern about the larger issues of the world around them than can easily be compressed into convenient pills for small stomachs. Because the existence of such a conflict would favor at least some sort of separation between the elementary and the more advanced educational exhibits, as well as functions, of the museum, the opponents of separation try to solve the dilemma by the simple expedient of arguing the general museums out of their broader missions. But this would scarcely be meeting the real issue, either.

It would be difficult to deny that the possession of much knowledge imposes an obligation to teach much. It does not matter whether the knowledge possessed is already reduced to the symbolic forms of language and mathematics, or is still represented by the original objects and materials from which it was derived, as in a museum collection. A museum with great collections and a great staff, therefore, has a moral obligation to maintain a large and educational exhibition program, which cannot be limited by the lowest common denominator of digestive capacity among its visitors. On the other hand, everybody should have the right to learn as much as he wants and is capable of, whether his limitations are temporary or permanent, due to age, experience, education, or intelligence. In order to deal with the question of how and where to teach what to whom by museum exhibits, we must first establish some premises and definitions, with apologies for following such an over-logical procedure.

As a first premise let us agree that there is no escape from the importance of providing for the education of children by museum methods. Second, let us see if we can agree on the proposition that it may be equally, and possibly even more, important to provide for adult education in the same way. As often emphasized by Robert Maynard Hutchins, the pace of history has become so rapid that we can no longer wait for the results of a better education for our children to take effect at the polls and in the seats of power. We must also, by means of adult education in all its varied forms, use every opportunity and every effort to provide for the greater enlightenment of those who are today determining the fate and managing the affairs of nations by their votes and by their deeds. With millions visiting their exhibits annually, the museums have an exceptional opportunity to contribute to this cause in a painless but effective way. If we agree that the opportunity creates the obligation, then we shall probably

continued on page 227

Fig. 1. Public school classes in The American Museum of Natural History, Hall of Forestry, 1915.

Fig. 1

Fig. 2A

Fig. 2B

have no difficulty in agreeing on the third premise, namely, that the adult education for citizenship most urgently needed today is not of a kind that a hundred unrelated topics will provide. On the contrary, a better understanding of the universal interrelations between all causes and events must be the most important target for our efforts. This is not something that can be compressed into small, self-contained doses as equally digestible and enjoyable for children as for adults. Age differences in mental orientation are as important in this connection as are differences in general level of knowledge.

As our eyes grow more farsighted with the passage of time, so do our minds. To a small child, the object in hand, or in view, is all that matters. There is nothing beyond today and nothing beyond the horizon. In fact, there is not even an horizon. The remote, the potential, and the abstract hold no interest. It has become axiomatic that the teaching of children must start from the visible and tangible things of their limited daily experience and cannot move far beyond permutations and recombinations of such experiences. As we grow older, thoughts and information communicated to us in the symbols of language play an increasingly important role in our own life experience. Our interests expand beyond the merely visible to include also that which can be visualized. And we look farther ahead. The infant does not think of tomorrow. The child beginning to note recurrent events in the family life around it may have plans for next week or next weekend. Then follow thoughts of next season. The teenager may worry about the next year or two, about grades and admission to college. At the beginning of one's career the next five years seem terribly important, but time beyond that still seems in the realm of the abstract. The young parents make plans for a decade or two, for mortgage payments and children's education. And the grandparents try to divine the fate of future generations. As a result we may find that the problem or situation that seems too remote to engage the attention of the child may be the one with the most pressing immediacy in the minds of the adults.

Related to the progressive widening of horizons, both in space and in time, are several other factors that the museum exhibitor must also take into account. One is the far greater diversity of interests among adult visitors than among the children, who, in this respect, constitute a rather homogeneous group. In countries with compulsory education laws, everybody has approximately the same educational background up until the age at which the minimum legal requirements have been fulfilled. As

Fig. 2. Small single classes before exhibits in The American Museum of Natural History. A. In the Hall of Minerals, 1928. B. Before a bird exhibit, 1936. C. In the Hall of North American Mammals, 1956.

← *Fig. 2C*

compulsory education greatly reduces, if it does not entirely preclude, child labor, there is also less opportunity for diversity of outlook in the very young resulting from practical experience. This does not deny the great psychological differences that exist even among the youngest. But we are here concerned only with the circumstances that determine orientation of interest, level of knowledge, and capacity to learn in various subjects, and these circumstances are, despite all differences in home environment and so forth, far more uniform before the completion of compulsory educational requirements than they will ever be again. For many, practical experience begins at once in an almost endless variety of jobs and tasks. For others, formal education continues, but no longer on a single track for all. Aspiring lawyers, doctors, bankers, scientists, teachers, engineers, and many others pursue their different courses through our institutions of more advanced education.

This expanding diversity of interests and experience in the adult population can be served only by a diversity of exhibits, which will be both quantitatively and qualitatively exhausting to a young child who has not developed the adult's self-protective ability to select and exclude but responds with indiscriminate curiosity to all new first impressions, even though it does not sustain its attention to things remote from its own experience. Coupled with the selectivity of the adult is a sense of proportion, or of importance, which the museums might well pay more attention to than most of them have done in the past. To a child, a knowledge of how the squirrel gathers and keeps its nuts is of real importance. To an adult, it may seem amusing and certainly unobjectionable, but it would be very hard to convince him that it is also an important thing to learn. On the other hand, any adult literate enough to read the daily newspapers will immediately recognize the value of knowing something about the natural resources of China, which would scarcely fascinate a child.

Quite apart from the needs of good citizenship which gave us our third premise, we now find, as our fourth premise, that the normal and natural interests of adults as private individuals also require a scale and kind of exhibition that does not offer the best chosen intellectual diet for a child.

On the basis of these premises, it is obviously impossible to set as the ideal goal of museum efforts the creation of a single series of exhibits that will simultaneously serve children and adults equally well, for these would be not the best exhibits for either age group but only the best compromises between their conflicting needs and much inferior to what could be done for each separately.

The thesis that has just been advanced is, of course, objectionable to the opponents of separate museums for children, and it is necessary to examine the arguments that are marshaled against the conclusions here arrived at. On page 4 of the International Council of Museums report we read:

> If an antithesis is made between the needs of young children and the needs of scholars and research workers, it is indeed possible to build up a case for separate museums; but such an antithesis is misleading, for a museum which caters only for research is not (except in the case of specialized University Museums) fulfilling its responsibilities. The really significant comparison should be between the needs of children (and particularly of adolescents) and the needs of the uninstructed general public; and it will be found that these needs, so far from being conflicting, are almost identical.

It would seem that contrasting the needs of children and of scholars is misleading, but an antithesis between the "uninstructed general public," also referred to as the "uninformed visitors," and the scholars, disregarding all levels of knowledge between the two, is perfectly in order. It would obviously tremendously weaken the argument against separate museum facilities for children to have to recognize the presence in modern society and among museum visitors of a large body of far from uninstructed but rather well-educated and well-informed laymen, who may quite possibly represent the most important audience for the messages of a general museum. With the rapidly growing attendance at colleges, universities, and other schools of advanced education this segment of the general adult public is increasing by leaps and bounds. Any conclusions based on the assumption that we merely have to make a simple choice between the needs of children and other uninstructed on one hand and the needs of scholars on the other therefore rest on a fallacy that will become more glaring with each passing year.

The statement quoted above also introduces another element of confusion. In a discussion specifically concerned with children's museums the emphasis is suddenly placed on the adolescents. This extends the age of the group to twenty-one, if not more. As no one has suggested excluding adolescents from instruction in the general museums, their injection into the debate can serve only to create a spurious diversion. There is, in fact, hardly anything for us to discuss if, on one side, we are primarily concerned with adolescents rather than children and, on the other, only with the "uninstructed" adults and not with the well-educated lay public. But this leaves the question of what to do about the children and about their not uninstructed elders entirely unanswered. Perhaps a lack of clear definitions has something to do with our difficulties.

What we have talked of as "general museums" is consistently referred to in the introduction to the International Council of Museums report as "adult museums," although there is not the antithesis between these museums and the children's museums that such a terminology would indicate. Actually, we are directly concerned not with questions of age, but with personal characteristics that are more or less correlated with age, without being rigidly determined thereby. It therefore becomes necessary to decide

whether we should really be discussing children's museums as opposed to general and adult museums, or elementary museums for all ages versus museums of secondary and higher education.

One of the sources of our problem is differences in general physical behavior, and in specific behavior during the process of learning, which cause one group to have a disturbing and distracting influence on the other. These differences are fairly closely associated with differences in age and make it a virtual necessity to separate the teaching of children from the education of adults, for the same reason that a well-designed home for those who can afford it rarely combines the children's play and work room with father's study or mother's sitting room.

The second set of more or less interrelated personal factors has to do with the fund of knowledge already acquired, the willingness and ability to acquire more, and the scope and orientation of interest towards and within the subjects taught in our museum exhibits. In these traits of personality are integrated all the effects of individual experience, which, in turn, is a product of the passage of time and of the manner and circumstances in which the time has been passed. Here, also, we therefore find a strong correlation with the age of the individual.

When the introduction to the International Council of Museums report speaks of the "uninstructed general public," it would seem that this is to be taken not as a polite circumlocution but rather as a deliberately one-sided expression, particularly well chosen for the purpose of trying to identify the museum needs of the majority of real or potential adult visitors with the museum needs of children. If words such as "inexperienced" or "immature" or any number of others had been added or substituted, the entire argument would break down. Actually, the amount of instruction received is, in spite of the wistful conceit of educators, only a very minor factor in the mental metamorphosis from childhood to maturity. To be sure, an adult's fund of knowledge in a subject entirely new to him, that is, a subject with which he has not previously had any practical, educational, or recreational contact at all, may be no larger than that of an untaught child. But, unless he is also mentally subnormal, an adult's orientation towards a subject of which he is as ignorant as a child will still be entirely different from the approach of a child. Memories of experiences a child cannot have had will always give the adult a different sense of values, a different focus of interest, and a different emotional response to the unfamiliar. In the mind of any normal adult, there will also always be a general store of knowledge, acquired from life or by instruction, which makes the problem of eliminating specific areas of ignorance by further instruction a very different one from that of meeting the insatiable curiosity springing from the general ignorance of the inexperienced as well as uninstructed child.

The opponents of separate museums for children also seek specious support in the discouragement to children of having to pursue their quest for learning on separate premises. But, granting that it must be very humiliating for the nursery school pupils not to attend university lectures for their education, one can still find ample reasons for keeping college and kindergarten separate, with little fear of traumatic effects upon the young. On the other hand, an "uninstructed" adult who "may well be oppressed by a sense of frustration, and even of guilt, at his own ignorance"[5] could easily suffer disastrous effects on his entire attitude towards adult education if he were to be directed into a predominantly juvenile environment even if he was not told to join the children in their activities.

Regardless of what aspect of the problem we consider, it becomes evident that even the most elementary education is not the same, nor does it mean the same, to children and to adults. The materials, methods, and environment of teaching must therefore differ accordingly. In the words of Helen V. Fisher, a children's museum is not a miniature adult museum, nor a junior version of one.[6] Through this reasoning we are led to the conclusion that children's museums strictly for children, rather than museums of elementary education for all, separately organized and equipped as museums within museums—or entirely set apart, but preferably affiliated with a general museum—offer the best solution for the perplexing problem of conflicting manners and interests between the youngest and the slightly older. Under this concept, elementary education for adults and secondary education for adolescents would both be functions of the general adult museum, carried on by special units of the museum teaching staff. With a close affiliation between a general museum and a children's museum, dual roles for many teachers could result in economies without in any manner obfuscating the educational separation between the two institutions.

One more argument remains to be brought forward in favor of separate children's museums, but in the meantime so much has been said against trying to combine education for children and adults in a single package that our discussion might possibly have given rise to a suspicion that the author of these remarks is secretly—and perhaps subconsciously—simply arguing for a postponement of the child's membership in the museum audience until it is a child no longer. Let us therefore briefly review why children's education must always remain a primary concern of all museums, regardless of how they may divide the labor among themselves.

Actually the museum's greatest potential contributions to the good of society and the individual are in the least-postponable aspects of educa-

[5] International Council of Museums report, p. 5.
[6] CURATOR, vol. III, no. 2, p. 184, 1960.

tion for future citizenship and personal happiness, because they are primarily concerned with the development of the mental attitudes and habits of reasoning that are essential for the achievement of true knowledge and understanding and only very secondarily with the mere accumulation of specific information for use in the daily routines of existence.

We all begin life with a completely egocentric orientation towards our environment and all that befalls us. But, apart from our egocentricity, we are blessedly free from mental and emotional prejudices, for lack of opportunity to have become otherwise. Through the early years we develop our opinions, inclinations, and emotional attachments on the basis of what we learn and experience. As our minds become more and more cluttered with preformed opinions and already established associations of ideas, it becomes increasingly difficult for us to derive new opinions from new facts, and we tend more and more to apply, instead, the opinions we already hold to whatever new facts we may learn, often ending by choosing to recognize only the facts that happen to harmonize with our habitual thoughts and feelings.

Each new experience gives rise to an association of ideas. Repeated experiences lead to the formation of opinions and propensities. To try to perpetuate the open mind of complete ignorance with which we are born would be both impossible and undesirable. It is unavoidable that all of us will develop fairly permanent attitudes towards knowledge, long before we have finished with the acquisition of knowledge that continues to the grave. This is why we can claim, without fear of contradiction, that the development of proper habits of thought and feelings is the least-postponable aspect of education. The negative open-mindedness of emptiness must be converted into reasoned objectivity, feelings must be given adequate scope and orientation, and prejudices must be balanced by counter-prejudices before the pattern hardens. The importance of museum services for children springs from the great role they can, and often do, play among the early influences that largely determine our responses to all later education and training, and to life itself.[7] Such services must not be withheld. Among the many areas of thought and action in which their influence could be felt, there are some that seem particularly important today.

In these days of stress and uncertainty there is a greater need than ever before of a dedicated, but not fanatic, patriotism, capable of accepting and offering criticism without loss of faith and devotion, Such a love of country and nation must be implanted early if it is to take strong roots. But a child's restricted mobility and limited powers of correlating experiences far apart in space or in time force us to rely to an ever-increas-

[7] See also Helen V. Fisher in CURATOR, vol. III, no. 2, sect. III, pp. 186–190, 1960.

ing degree on vicarious experience, knowledge gained at second hand, and understanding derived from condensed abstractions of a too extensive reality. This is particularly true of large countries with a great diversity of people and places within their boundaries, so that no local landscape or community can adequately represent country and nation as a whole to any onlooker, be he young or old. Films, television, and other media of mass communication may contribute in their impersonal way, but society has yet to devise institutions that can serve the need of personal, though secondary experience for children to better effect than a well-planned and well-conducted children's museum. Through objects and exhibits of natural history, the child can get a first glimpse of the grandeur, beauty, and fascinating possibilities of a country too vast to be encompassed by direct experience at his age, if ever. Collections of history, art, and technology may stir his imagination as echoes of the struggles and achievements of his people.

In this connection it will be well to remember that history never ends. Today is as much a part of it as yesterday ever was. To avoid the impression that a museum is always looking nostalgically towards the past, and for the sake of the message it brings to the children, it is important to bear in mind that our seafaring did not end with the "Flying Cloud" running before the wind under full canvas, nor was the last textile woven on a hand loom. Of course, the museum must always be grateful for the steady stream of "fine old things" it continues to receive out of genuine generosity or a simple desire to clean up the attic. But it might be helpful to let the donors know that fine new things would be welcome too.

A very young child may have very strong emotions but starts in life without emotional prejudices. It gives its love or its hatred according to the pleasure or pain it receives from the individual object of its feelings, without regard to creed, color, or any other secondary considerations. It does not generalize its sentiments into group prejudices, and it is doubtful that it ever would if left to its own experiences, except in the case of an actually existing collective hostility, as between antagonistic species in nature. The irrational prejudices that plague the world today are inculcated quite early in life by others, perhaps only slightly more advanced in years, perhaps of the older generation—usually by building upon isolated events of actual experience but of no collective significance. To offset the unfortunate influences that may be present in his own immediate social environment, the child needs another source of communicated knowledge to relate to the facts of his own direct experience, or to substitute for the lack of it. Ethnographic exhibits and demonstrations may open his eyes to the great history and fine achievements of people different from ourselves, both within and beyond our own country, before petty events and poor advice blind him to all that is good in anything alien.

Museum services for children have much to offer towards the creation of better social and international relations at all ages.

The need for more scientists and for a better public understanding of science has become a national problem. While it is true that dedication to the quest for knowledge and understanding is not the only motivation that ever led to a scientific career, it is also true that the vigor of the scientific community is dependent largely upon the ardor of those who are driven by an inner need and devotion in their search for the truth. But such feelings are attributes of personality that must be implanted very early in life if they are to take a firm and enduring hold. Regardless of all specific knowledge that institutions of more advanced learning may have to impart later in life, a museum that reaches the child in its early years may still be the most important element in the creation of a scientific career.

Persons who work in separate children's museums often express concern that they can show so very little of all that there is to be shown in the sciences, arts, and humanities. But this is true of all forms of elementary exposition, whether by the printed word, lectures, or exhibits, and is no reason for despair. The main task is to arouse curiosity, not to answer all questions. It might well be said that a museum that stimulates no more curiosity than it can satisfy would be a very dull place indeed. Because the teachings of a museum are presented not primarily in the abstract symbols of language that are the main tools of the class room, but by demonstrations of the actual or reconstructed evidence from which our knowledge of nature is obtained, museum exhibits also afford an opportunity for the child to make its first acquaintance with the deductive method of science from the moment that the first seeds of scientific curiosity are planted in the mind. It would be very difficult to find a potentially better and more effective agency than a children's museum for stimulating future careers in science.

With our growing life expectancy and our increasing use of mechanical power and machines to replace or extend the work of human hands and minds, the problem of what to do with our spare time is reaching dimensions never before experienced in human history. From all we can tell today, it seems unavoidable that developments must continue on their present course at a rapidly accelerating pace. As less time becomes needed to sustain life, more time should become available to enjoy it, if we know how. Today it is still considered mainly a problem for the elderly, and sociologists are hard at work devising happy avocations for those who have ceased having vocations. Tomorrow it may be a problem for all ages. However that may be, there can be no doubt that the best time to prepare for leisure in later years is during the leisure hours of childhood. To one who never learned at a tender age to read a good book, or to enjoy the pleasures of music, art, philosophy, or the study of nature, it is likely to be

more disheartening than encouraging to be advised to do so in later years, just as a man who never discovered the fun of fishing in his teens is likely to be more insulted than pleased if told to do so in his sixties. Again it would be difficult to find a better place than a children's museum for exposing the children to the pleasures of occupations that can be enjoyed until the end of life. We cannot all become scientists, artists, or historians. Society also has too many other jobs to fill. But we can all find interesting pursuits for our spare time in the sciences, arts, and humanities, which will help to provide for happy individual lives of mental and physical vigor and contribute greatly to the soundness of society and nation.

The development of love for country and nation, of tolerance and international understanding, of future scientists and scientific policies, and of solutions for the problems of increasing leisure are only four outstanding areas in which museum services for children have an invaluable role to play. There are other areas also, but these should suffice to show beyond doubt the importance of continuing to maintain, expand, and improve the services we offer to the youngest regardless of the difficulties entailed. We may therefore return to our discussion of how to meet the needs of the children, which we left with the choice between museums within museums and separate children's museums still somewhat in abeyance. Actually, this is scarcely a real choice.

In a large metropolitan area, a visit to its central museum will generally involve travel beyond a child's capacity to undertake alone, and beyond parents' or teachers' time, energy, and inclination to do very often. To serve its purposes well, the museum should be part of the child's regular if not daily experience and not merely the goal of special grand excursions on rare occasions. On the other hand, the scale of the central institution is likely to be far beyond the needs of daily use until a broader and more mature knowledge of its subjects has been gained. The obvious solution would seem to be the creation of local branch museums for elementary levels of education, ideally guided and provided for by the knowledge and collections of a central parent institution, but entirely autonomous in their daily functions. At the same time as they would greatly expand the museum's services to the public, these branches would also lessen the central institution's burden of overcrowding and incompatibility, not merely by taking care of the youngest visitors elsewhere, but also by the opportunity they would provide of acquiring some museum experience and sophistication before the invasion of the larger establishment.

If elementary branch museums are desirable in other neighborhoods, it would obviously be entirely inconsistent to banish them from the vicinity of the general museum. A children's museum within a museum would therefore become a logical part of the community-wide system and a convenient pilot plant for the development of methods and materials

usable in all the branches. If the idea of many branch museums in a single community should seem highfalutin, one need only recall the branch system of the public libraries, and the fact that there are cities of fewer than 100,000 people with more than half a dozen first-class museums. Even a dozen branch museums in an urban community of several million would hardly be out of proportion.

Because the exhibits of the elementary branch museums would not be extensive enough to discourage the "uninstructed" adult with their display of erudition, any more than they would exhaust the unsophisticated child with their variety and abundance, the objectionable need to separate the scholastic sheep from the goats among the adults would not exist in the branch establishments. They could therefore also serve during evenings and weekends as family museums without embarrassment to old or young, in a manner in which a children's department or a junior museum within a museum cannot. If this should seem harsh on the "uninstructed" bachelors of the neighborhood, we can only repeat the old retort that it is impossible to please everybody.

Patterns of Progress in Exhibition

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Our outlook upon museum exhibition has undergone a remarkable evolution during the last ten to fifteen years. The surge of new styles and new ideas has been world wide and has, of course, not been confined to the museums which undoubtedly merely respond to the flow of cultural changes as often as they stimulate new trends. But let us not minimize or forget that the museums can and do influence the direction in which civilization is moving and that their importance to society is in direct proportion to the effectiveness of their methods of communicating with the people they serve. Regardless of the many other ways in which the museum may reach an audience, its principal means of communication must always remain the exhibition program. If this should ever become a secondary aspect of museum activities, the museum itself will also have become an institution of secondary importance and dubious necessity in our cultural pattern. It is only through the physical realities of their exhibits that the museums can claim a unique and irreplaceable role in the life of the community. Their contributions through other media, from the lecture hall to the television screen, might well be taken over by other organizations, perhaps even with better and more economical results, if there were not separate and more compelling reasons for the existence of museums.

The recent evolution of new museum styles of presentation has taken many and varied forms and has progressed at very uneven rates in different regions and institutions. If it sometimes seems to have been more sudden or more radical than the concurrent changes in general fashions and taste, the impression can usually be ascribed to the fact that the museums, before their awakening, had generally permitted themselves to fall farther behind their times than most other types of enterprise dependent upon the response of the public. In museums such as those of

natural history, which cannot merely put the treasures of their collections on display but have to create *de novo* most of the contents of their exhibits, the time required to complete a change-over often leads to startling juxtapositions of the new and the old within the same institution, thereby calling forth an image of suddenness and lack of transition in the progress of exhibition techniques.

The sights that meet the eyes of the visitors in our exhibition halls are, of course, only the temporary products of the evolving arts of design and preparation. Discussions and comparisons of the concrete realities of display are profitable only when related to a specific thesis, limited to the history of a particular institution or the exposition of a particular subject. Various articles of this nature have already appeared in CURATOR. But perhaps some observations relating the end results on public view to the changing patterns of organization that guide and produce our exhibits may still be expressed in general terms.

In the beginning the exhibition halls of a natural history museum were only additional provinces in the domains of the curators in charge of the scientific collections. They were to all intents and purposes the personal show rooms of the scientific staff, in which the public would tolerantly be permitted to see the treasures in which the curator himself took the greatest interest or pride. There is an authenticated story relating how the director of a large and famous museum was brusquely told to leave one of the exhibition halls of his own institution, when he offered an observation displeasing to the curator in charge, who was able to make his orders effective on the strength of his prerogatives.

To the extent that the curator had any help at all in these good old days of curatorial hegemony, it was quite likely to be only the assistance of a general factotum dividing his time between the preparation of exhibits, the care of scientific collections, and personal service to the curator in his research and other activities.

At this stage the word "design" was scarcely applicable to museum exhibition. The interior as well as the exterior of the museum building was drawn by an architect to express his own concepts of handsome mass and space; not to form an integrated container of the displays within. In other words, even the interior aspects of architecture and decor were generally not manifestations of exhibition design, and exhibits were installed in the manner in which we still try to arrange our furniture in a rented apartment, although with much less charming results because rigid scholarly discipline rather than seductive charm was the guiding principle of the curator's efforts.

Before the advent of built-in exhibits, such as the habitat groups, virtually all the objects shown in a natural history museum were easily movable, and a great majority of them could be equally well shown from

any side or from all sides simultaneously. This gave the early curator a freedom of choice in the placement of his exhibition furniture, which has since been partly surrendered to the demands of habitat groups, period rooms, and similar installations. Since, on the esthetic side, the curator could only strive for harmony with an already given architectural interior, his arrangements were dominated by considerations of the general scene facing an observer, and it is typical of such curatorial layouts that they tend to be completely revealed in the eye-level perspective of a visitor in the hall. While the results of this architectural cart-before-the-horse method of procedure were often drab and dreary, they could also be quite attractive, and one may still find undisturbed early museum halls with much of the charm of good historical houses of the same period. It is to be hoped that at least a few of these will be preserved among the cultural memorabilia of their age.

In the natural history museums the introduction of the habitat group and the emancipation of the preparator were very closely related for reasons that are easy to understand. Before the habitat group, a preparator "stuffing" an ape might never have seen one alive, and had to work under close direction and criticism by the curator, who might not have seen one either, but was supposed to be better informed from his studies of the literature and particularly of the marvelous illustrations of Buffon. If the resulting work of art at times looked rather like a cross between artist and model, this is not too surprising, but neither here nor there. With the introduction of the habitat group it became essential for the executive artist to gain a personal knowledge of the natural environment which few, if any, curators had the capacity to convey. This was long before the days of color photography. While the colors of the fur of a mammal may persist for a very long time after life has ended, and the size and form of the beast can be fairly accurately reconstructed from its imperishable bones, both the forms and the colors of the plant life that dominate the surroundings are quickly evanescent after death and had to be recorded in the field sketches of the artist before they could fade and crumple. Actually museum curators at this time were still being kept so busy with the collections brought back from abroad by officials and private persons going about their duties and affairs in distant parts, that there was as yet relatively little need for the curator himself to be an explorer also, and many of them hardly ever left their cherished collections to look at life in nature. As the subtleties of the art of the diorama evolved, the need for the artist to be his own guide and observer evolved with it. The preparation of exhibits became an increasingly autonomous function, with the curators acting more and more in the capacities of customers and critics of the products, rather than directors and daily supervisors of the work.

One aspect of the ascendancy of the preparator was his growing influence upon the entire organization of the exhibition plan. As the dioramas became larger, it became less and less feasible to deal with them simply as furniture to be placed in a suitable spot within pre-existing space and decor. In old buildings any harmony that may have existed between contents and architectural container was disrupted, and any conflict acerbated. In the projection of new construction the accommodation of the preparator's plans for future dioramas became a prime consideration. The outcome was a new type of floor plan for natural history exhibition halls, which may well be categorized as preparatorial layouts, as distinct from the earlier curatorial arrangements.

continued on page 341

Figs. 1–3. Curatorial style in plain surroundings. Old halls of The American Museum of Natural History. 1. Low exhibition furniture. 2. Tall display cases. 3. High and low.

Fig. 4. Curatorial style in old hall of birds. Musée National d'Histoire Naturelle, Paris.

Figs. 5, 6. Curatorial style in ornate surroundings. Old views from the British Museum (Natural History).

Fig. 7. In transition. Preparatorial style at right, curatorial style with free-standing display furniture at left. Hall of South Asiatic Mammals in The American Museum of Natural History.

Fig. 8. Preparatorial modification and use of ceiling by false dome. Whitney Hall of Oceanic Birds in The American Museum of Natural History.

Fig. 9. Preparatorial style, with invasion of floor space. Hall of African Mammals in The American Museum of Natural History.

Fig. 10. Structural form of space (heavy, black) completely concealed by superimposed preparatorial layout (light lines). Hall of North American Mammals in The American Museum of Natural History.

Fig. 11. Picture of view indicated in Figure 10.

Fig. 12. Preparatorial style with complete subdivisions of space in a systematic exhibit. Audubon Bird Hall in the Academy of Natural Sciences of Philadelphia. Compare with Figures 1 to 6 and 13.

Fig. 13. Designer's layout. Hall of the Biology of Man in The American Museum of Natural History.

Fig. 14. Modern exhibition design. Hall of the Age of Mammals, United States National Museum. (See text.)

Fig. 15. Modern exhibition design. Hall of Invertebrate Paleontology (and Paleobotany), United States National Museum. (See text.)

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

g. 6

Fig. 7

Fig. 8

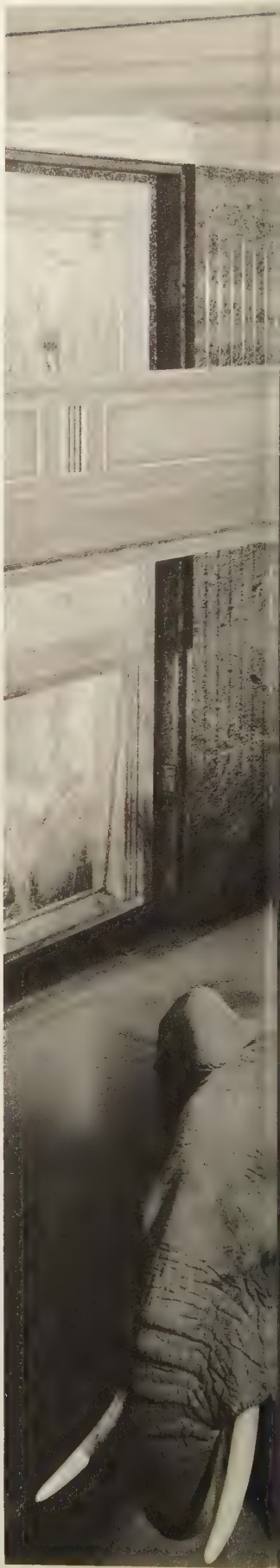

Fig. 9

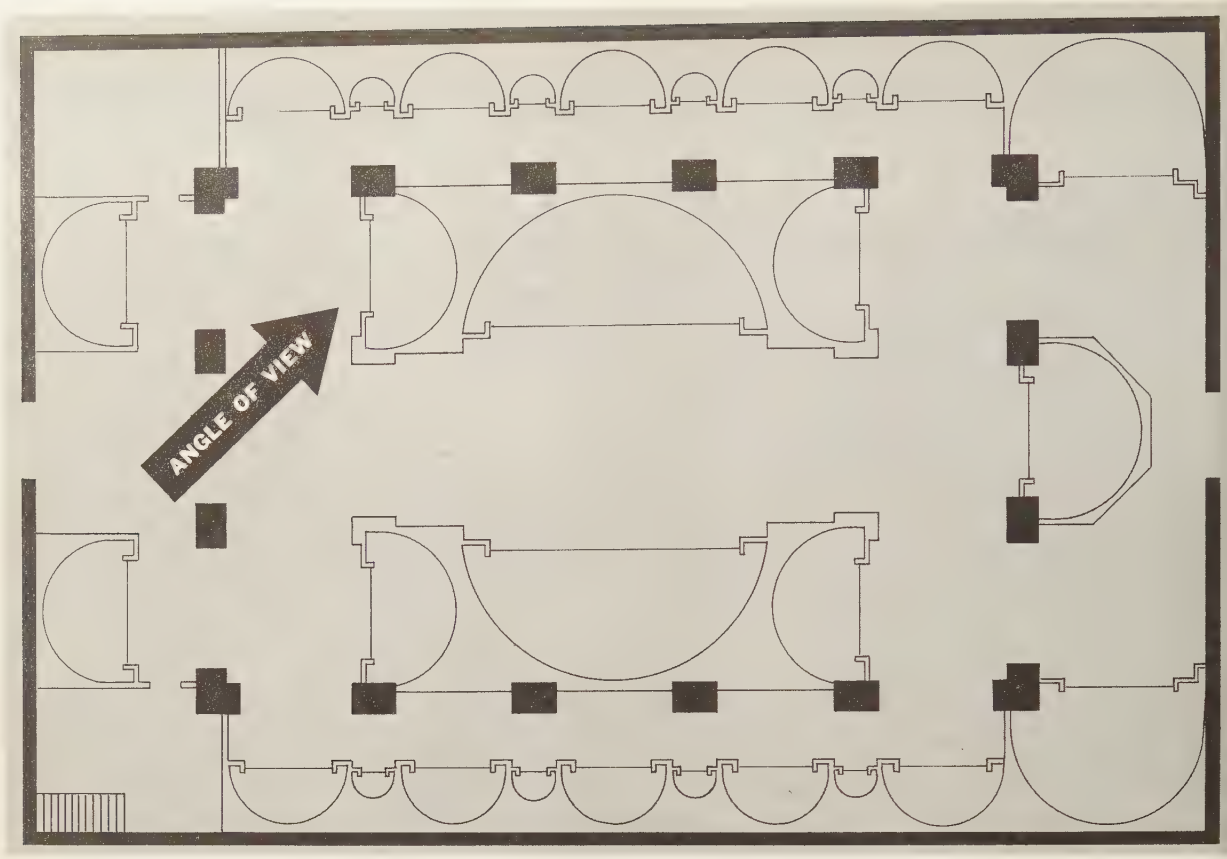

Fig. 10

Fig. 12

g. 11

. 13

Fig. 14

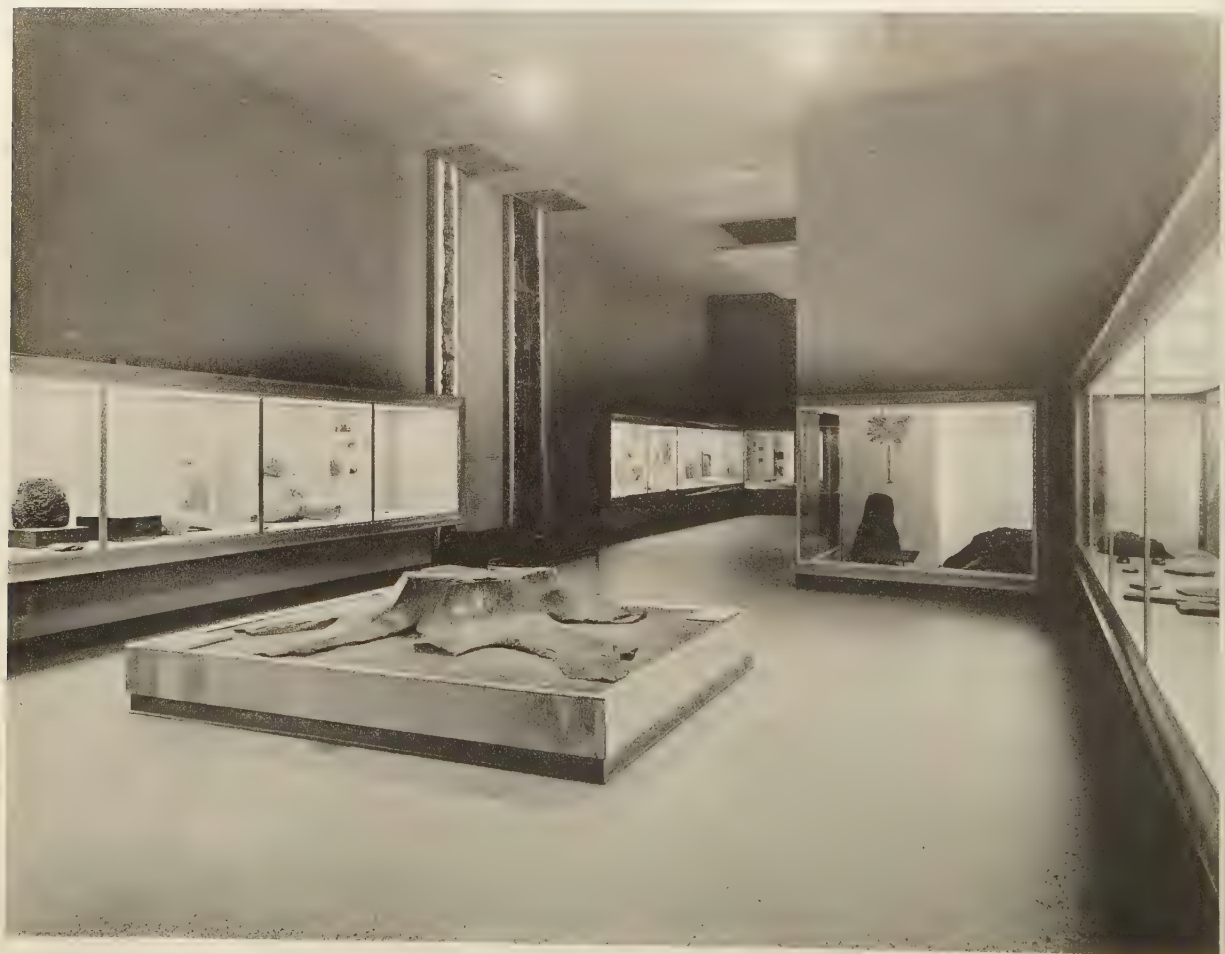

Fig. 15

It is generally characteristic of the preparatorial layout that it does not reveal its over-all conformation and rationale in horizontal perspective, but can be fully understood only in the bird's-eye view of blueprints and floor maps, where the spatial requirements behind the walls that face the public can be shown. This is perhaps the most fundamental difference between a preparatorial and a curatorial layout in their outward appearance.

When preparatorial layouts have been forced upon older halls without complete remodeling of their interiors it has often brought about hideous clashes between still visible elements of an earlier decor and new "false" partitions that do not entirely conceal what they replace. But when architect and preparator have had opportunity to work together on an over-all scheme the results have often been excellent.

The acclaim for the habitat group seems at first to have caused a long period of neglect of all other kinds of exhibits in the natural history museums. But the success of the diorama unquestionably played a major role in ultimately precipitating the reappraisal of all methods of presentation used in our exhibition halls.

The abundant use of table cases and A-cases in the curatorial layout was obviously related to the curator's feeling that he was merely furnishing a room with his collections, with an obligation not to hide or to violate its architectural form and decor. But the liberation of exhibition from its subservience to architecture won by the diorama, and the example of the habitat group's own proscenium arch, soon combined to make table cases and all forms of low, free-standing exhibition furniture seem as obsolete as they had seemed appropriate before.

It is quite possible that the reorientation of specimen exhibits from predominantly horizontal or gently inclined planes to almost exclusively vertical arrangements, in well-illuminated, built-in showcases, may have helped to make the dreariness and boredom of systematically regimented items on parade more conspicuously objectionable than they had been when so many of the objects entered the general view only in a foreshortened perspective. However this may be, an awareness was born that the organization of discrete objects into attractive patterns is in itself a medium for the expression of artistic skill, and the arts of display began to be recognized as special elements in the organization of a museum's exhibition program. Under the influence of this new look upon specimen showcases, the shelves began to disappear and the disposition of the entities became integrated into the composition of the omnitude in the larger image of the entire display.

In the beginning it was usually the preparator who functioned also as display artist, but very often with wanted or unwanted, professional or dilettante assistance in this particular aspect of his work. But a division of

labor gradually evolved in many of the larger institutions in recognition of the fact that the best display artist is not necessarily also the best painter of backgrounds for habitat groups or the most skillful sculptor of miniature models and taxidermic manikins, and vice versa.

As the functions of display slipped away from the tasks of preparation, they drew closer to the role of architectural design, often drawing upon the talents of the architecturally trained for the solution of the display problems. Out of this new coalition has come the latest and, as yet, unconsummated revolution of style in museum exhibition.

We have seen how the preparators' increased demands for the withdrawal of floor space to meet the backstage requirements of their ever larger installations forced the exhibition planners to give primary consideration to the unseen vertical perspective rather than the visible spectacle of the horizontal view, and also how the example of the diorama created a vogue for the built-in showcase inserted into real or apparent walls. To meet this demand false partitions were introduced where no structural walls existed. The great vistas of open halls disappeared. The space was divided into smaller and smaller units by optically solid separations from floor to ceiling. In the end the preparatorial type of layout, as it spread through the museum, became ponderous, oppressive, and conducive to subliminal claustrophobia.

Actually the makers of the habitat groups wanted the visitors to forget that they were indoors and did their best to eliminate any awareness of the architectural surroundings. In the circumstances, the lack of sensitivity to the forms and dimensions of space that seems to characterize so many halls for habitat groups was only to be expected, although it has often defeated the preparatorial purpose of enabling the spectator to ignore his whereabouts. The display artist, on the other hand, is not concerned with illusion, but with the creation of a pleasing assembly of separate objects artificially arranged in a man-made setting incorporated into the interior of an architectural edifice. The quality of an exhibit of this kind depends not only upon its interior logic and esthetic, but also upon its relationship to the broader scene in the observer's marginal field of vision and in his changing points of perspective. The growing autonomy of display therefore brought with it a new consciousness of panorama, which has led on in two directions. On one hand we find exhibition halls remodeled by "false" partitions or other devices so that the configurations of their interior volumes become an independent contribution to the contents, order, and logic[1] of the subjects presented. On the other hand there has also been a tendency toward maximum liberation of space by restoring to view the structural form of the premises in which the exhibits are installed.

[1] See Parr, "Designed for Display," CURATOR, vol. II, no. 4 (1959), p. 324 and fig. 14.

The first of these new trends has been particularly evident in museums and other establishments with semi-permanent installations. Superficially it might seem to involve only a refinement of the preparatorial layout, but it actually represents the application of quite different principles. The design is evolved not from preparatorial needs for space, but from educational and esthetic needs for form and order. While the designer should give consideration to the problems of the preparator, their solution is not the primary purpose of the design, which, on the contrary, sometimes does and, within reason, legitimately may complicate the preparator's task.

Among the advantages of the molded interior volume over the open treatment of total available space are the much greater opportunities for surprise and the much sharper accent on changes of pace made possible by the closed perspectives.

One of the first manifestations of the other trend, toward the maximum exposure of space, has been the breakup of the pseudo-solid obstacles built as wrap-arounds for exhibits that could not be inserted in genuine walls. Showcases are airily suspended on the slenderest cables or rods descending from above or blithely raised from the floor on the thinnest legs or central columns that the most sophisticated use of metallic strength will permit. The confining alcoves of the preparatorial layouts dissolve into broader vistas of larger units of space, with the visitor able to look above, below, and around most of the exhibits not directly joined to basic elements of bearing or sheltering structure.

The repudiation of the preparatorial style of interiors involves more than a mere change in details of design. It means a rejection of the subconscious but effective notion that exhibits belong on walls, and an affirmation of the principle that good display should not divide and conceal space as small volumes of vacuum between showcases. In relation to the totality of an exhibition hall, the limited proportions of glazed niches and specimen cases may be regarded as essentially two-dimensional. The real test of modern museum showmanship lies in the use the designer makes of the entire third dimension of the volume of space allotted to him. The space that surrounds the visitor becomes even more important than the morsels of space that confront him behind glass. In this surrounding space the spectator's entire field of vision is fully engaged and his own movements are translated into a movement of changing and unfolding perspectives. Perhaps the most fundamental distinction of the modern trend is therefore that it requires the designer to function creatively both in space and in time, keeping under firm control the infinite variety of visual relationships that time and his own progress reveal to the viewer, even while using all the permutations of shifting perspectives to stimulate and to instruct.

The new style of open vistas might at first glance seem only a

modernized version of the early curatorial concept of exhibition as a room furnished with exhibits. However, the unobstructed room has always held its place as one of the exhibition formats of art museums and galleries, without the temporary surrender to preparatorial ideas and demands that occurred elsewhere, and maximum exposure of interior space, making dramatic use of the vast reaches under their canopies, has remained a popular feature of fairs and temporary expositions since the beginning. The evolution of the overt mode of display is therefore much farther advanced in establishments such as these than in the museums of natural history, which still have a lot to learn in that direction from the marts and emporiums of commerce.

In the purity of the abstract the contrary trends toward the exposure of space to its structural limits, and toward the molding of smaller, interior volumes to fit the logic of subject matter, might seem to offer little possibility of combination and compromise. Actually the tendencies are not irreconcilable or mutually exclusive, and most of the recently effected arrangements in museums other than those of art would seem to reflect a little of each. The design for the new Hall of the Biology of Man in The American Museum of Natural History (Fig. 13) strives to achieve as much as possible of the relaxed feeling of an undivided expanse, at the same time as the structural dimensions of the building itself made it necessary to use "artificially" reduced interior volumes for the presentation of the exhibits. Figures 14 and 15 from the United States National Museum show fine examples of lively and attractive changes of pace obtained by the molding of interior space with due consideration of the value of fairly long perspectives. The treatment of the ceiling and the use of counterpoint derived from the dimensions of specimens ranged against a wall are particularly noteworthy and instructive features of the area shown in Figure 15.

In their reawakened concern with the general shape and impact of interior space, the museums of today have moved beyond the domain of the display artist in the limited sense of the "window dresser" or interior decorator, and have re-engaged the architectural profession not merely as occasional adversaries in the planning of new edifices, but as daily members of the teams that are constantly molding and remolding a museum's interiors to fit the changing ideas, contents, and purposes of its exhibition program.

The evolution of organization and division of labor traced in the preceding has, of course, been possible only in the the largest museums, and may never have been so clear and unambiguous as it would appear in this simple outline. There is, for example, the question of whether "display designer" and "interior architect" should merely be taken to denote different capacities in which a single person may perform, or separate oc-

cupations of different individuals,[2] and many other points of detail on which the pattern of progress may waver.

With all due allowance for variations and exceptions, it is fair to sum up by saying that the tasks of exhibition which, in the natural history museums, began under the exclusive, part-time direction of curators have evolved step by step into complex operations requiring the guidance of a strategy board on which curators, preparators, display designers, and architects of interiors must all have an equal voice. Who presides over this planning and executive unit in any particular institution and on any particular project is a purely administrative problem, which may be solved in different ways according to different circumstances and ought not to give rise to misgivings about prerogatives of position.

Lest the picture that has been painted of the complexities of modern exhibition should seem one of despair for the small institutions, the writer would like to conclude by expressing his conviction that the smaller museums by joining their efforts should be able to secure any service that the larger museums are able to obtain, each for itself, and that the larger establishments, for the richer and swifter development of their own experience, have a very selfish interest in helping to solve the problems of those less abundantly endowed, if the ideal of service to the nation before service to the self should not be sufficient incentive.

[2] See Parr, "Some Basic Problems of Visual Education by Means of Exhibits," CURATOR, vol. V, no. 1 (1962), pp. 37–38.

Museums and Realities of Human Existence

by

A. E. Parr

Reprinted from

Museum News

December 1966

The worlds of entertainment and of education intertwine without any clear boundary line to mark the transition from one to the other. There is always a lesson in your diversions, and your exposure to planned instruction is sometimes mildly diverting. The distinction becomes particularly hard to draw in a comparison between spectator amusements and the presentations of visual mass-education. Still, a real difference does exist, and none of us feel much in doubt about the nature of an establishment that does not actually belong in the broad boundary of borderline cases.

I was a zealous museum visitor under my own propulsion before I became a somewhat less eager frequenter of classrooms, and, to me, a museum has always meant an educational institution, even when I could not yet have expressed my opinion in those words. This may now seem merely a trite reiteration of professional consensus at every museum conference during the last decade or two. But the unanimity may be illusory, and the records on which we so proudly congratulate each other on every occasion may not be quite as meaningful as we would like them to be, and often pretend that they are.

The membership of our associations and the attendance at our meetings are not random samples of the many trades, crafts and professions that work in our museums. Directors contribute the highest proportional representation, by a wide margin, with a particularly ample quota from the arts. In relation to their total number, museum pedagogues, including those from the children's museums, also contribute substantial contingents of conference participants. Others always present in fair numbers include people concerned with exhibition, publicity, sales and services, and similarly specialized functions in the area of contact with the general public. On the other hand, we find a persistent, and wellnigh complete, absenteeism among the scholarly and scientific curatorial staffs, particularly in the larger institutions. This is the group that sometimes explicitly, and nearly always in their actions, place their own interests in research ahead of the mu-

seum's teaching obligations. In other words, our associations are joined in, and our assemblies are attended almost exclusively by those whose interests are primarily oriented towards the public functions of the establishments in which they serve, whether their concern has developed from the duties of their positions or from personal inclination. No wonder, therefore, that these guilds and gatherings are able to enjoy, and to propagate an impression of unanimity about museums being above all else, educational institutions, primarily devoted to the needs of the community, its schools and its general public. With the new upsurge of research through tax money support, it will be wise to make a more realistic appraisal of the actual extent of the apparent agreement about the principal purpose of museum existence. The developments that have recently become the cause of some apprehension in colleges and universities could easily be repeated in our museums, with less chance of early discovery and cure, because the museums have no registered student body, ready to protest any neglect of educational needs. It would also be advantageous if we could learn to use the word "education" with greater precision and more respect for its full significance.

Whenever we speak of the "educational activities" of museums we seem to refer only to the functions of a teaching staff giving verbal instruction in lecture halls and among the exhibits, often making use of demonstration objects that can be manipulated by the students, but are not part of the museum's offerings to the general public. This interpretation of "education" has become so commonplace that nobody feels the slightest uncertainty about the intended connotation of "Education Section" when he finds the expression used in a conference program. This distorted use of vocabulary plays directly into the hands of our enemies, reinforcing, if it does not create, the idea that a museum is educational only when it acts in imitation of the classroom. But if the exhibits themselves, unaided by docents, lecturers, guidaphones or other audial verbalizers, are not the principal vehicles of

museum teaching, there is little reason for the museums to remain in business. Without in any way belittling the invaluable supplementary tasks performed by the "education departments," let us reaffirm the supremacy of exhibition as the museum's prime medium of communication with visitors of all ages, backgrounds, interests, and motivations, whether they come to us as individuals or as students with their classes.

While we bask in the glory of staggering attendance records we actually know very little of what the figures really mean. For instance, how many individuals are involved? It seems clear that art museums, on the average, receive more visits from the same persons over a given length of time, than do the museums of natural history. In galleries that emphasize temporary exhibits over permanent installations, the "regulars" may become a major component of the crowd present at any moment. In a natural history museum an annual attendance of two million may possibly mean that a million-and-a-half people entered its doors at least once during the year. In a museum of art, the same total count might only refer to repeated pilgrimages by less than half-a-million devotees. If this be so, it actually reflects much greater credit upon the art galleries than upon the natural history establishments, because it is through the visitors who become habitues that museums bestow the greatest joys and educational benefits upon the community.

The grossness of a purely quantitative self-esteem may also backfire in the end. It should not be forgotten that the Roman circuses likewise enjoyed excellent attendance records. The question is not how many arrive, but how well are they served by what they find when they get there. Of this we know very little indeed, and my experiences over a considerable number of years are beginning to convince me that the museums large enough to sponsor the task of finding out, are actually afraid to do so for fear of discovering that the methods they

have followed are not the best that could be devised. It is difficult to find any other explanation for the discrepancy between the cautiousness and frugality of action, while millions continue to be spent in the same old way, and the verbal enthusiasm for discovering the truth in which everybody piously join.

While the museums have done little or nothing to promote objective inquiries into the effectiveness of visual education, others are undertaking such studies on an increasing scale, particularly in connection with temporary expositions, such as the Federal Science Pavilion at the Seattle World's Fair, in which large expenditures of public funds are involved. The results, so far, have been rather shattering to fond illusions. The findings indicate that the average effects of a visit to an educational exhibition are, as a rule, so slight that they are near, or below, the limits of accuracy with which such results can be determined in a statistically significant manner. When dejected by such figures, I was once consoled with the remark that if we took all that was learned of a given subject in the course of a year in school, and divided it by the number of hours spent in acquiring the knowledge, we would also arrive at an average amount of learning per hour that would be likely to be extremely hard to measure by itself. But even this kind thought merely suggested that an hour in the museum need not be less beneficial than an hour in class. Since each class comes to us only once or twice a year, does this mean that our entire mission is merely, on rare occasions, to break the monotony of life in school, without other measurable benefits than a temporary diversion?

Much more work has to be done before we need to accept such conclusions as final. In the meantime we must be prepared to face the possibility that our main contribution may not lie in the communication of information, but in the reinforcement of knowledge already obtained beforehand, and in the stimulation of interest and motivation. These potential benefits should be just as easy to evaluate as the information gains that are generally the principal object of inquiry. There is also a need to

learn what role the museums may be playing in the development of the outstanding members of the community and the nation. Granting the importance of averages, we must always keep in mind that we are, in the final analysis, dealing with the personal peculiarities of individuals in their infinite variety.

I do not believe that the museums should undertake to be their own judges. But only if they themselves participate in the promotion of competent and objective inquiries, letting the chips fall where they may, will the museums be in a position to insure that all aspects of their complex functions be equally thoroughly and impersonally evaluated. In the meantime we are more or less limited to theorizing about what we believe the museums are doing, and what we hope they may accomplish by doing otherwise.

For a long time I shared with many of my pedagogically inclined colleagues a happy conviction that the purposes of a museum could be defined in a very simple manner by analyzing what people, as individuals and as citizens of a democracy, ideally ought to know of the subjects that come within the contents and competence of any particular establishment. I still believe that the over-all aims of our entire educational system must be determined by some such method of reasoning. But, when we consider a particular teaching device, such as a museum, I now suspect that it may be more confusing than enlightening to our meditations upon programmes and policies, if we try to relate the functions of our institution directly to ultimate goals. Let us, therefore, start from the less pretentious premise that the purpose of a museum is to serve as a means of progress, and not as an autonomous arbiter and consummator of final ends, even within its own fields of knowledge. Such a reorientation of our thinking may affect our conclusions more drastically than would seem immediately obvious. We are no longer chiefly preoccupied with

the contents of a lesson or a sermon, but primarily concerned with the best uses of a tool of communication. Our first question is "Who?" rather than "What?", although issues of subject matter will, of course, regain their prominence in the later phases of our inquiry. A brief glance at the broad outlines of our history may be helpful at this point.

In the course of evolution, descendants of a common ancestry often evolve along divergent lines until the marks of their unity of origin are almost lost in the diversity of their fates and features. This has also, in many ways, been true of the lineage of our museums. All museums old enough to have reached their maturity started from collections in days when the contents of collections represented the frontiers of knowledge, without therefore being divorced from the orbit of everyman's daily thoughts, problems, hopes, pleasures and experiences, or removed from the average adult's ability to comprehend and enjoy. For the museums of art, history and other humanistic subjects the happy circumstances of their birth have remained, and become further enriched in the passage of time. But the museums of science today face a world for which they were not born. Nor can the museums of science and technology and the museums of natural history take much consolation from each others company in their difficulties. The problems faced by the two kinds of establishments, and the drastic readjustments they may have to make both in philosophy and performance are in many respects virtually antithetic.

The museums of natural history were first created for the preservation and display of materials out of which pure science built its knowledge and extracted the evidence for its conclusions. These museums have been very late and reluctant to concern themselves with the practical application of the sciences they cover. Virgin nature uninfluenced by the acts of man is still their main preoccupation, and when they refer to the works of humanity it is usually more in protest than in approval.

The exact sciences first found their place in museums through their application in man-made in-

ventions. Timepieces and mechanical toys were among the earliest objects avidly gathered and shown to the curious. But collections and exhibits very soon came to embrace the entire range of tools, utensils, machinery, vehicles and equipment used in daily life and labor, as well as the instruments of research. The functions of all such appliances are, of course, contrived expressions of the laws of nature. But the natural forces at work are commonly so deeply hidden in the structure of the implement, and their operations so transformed in the performance of the mechnism, that it is difficult for an onlooker to perceive the basic principles involved, unless he already knows more than the object before him can teach. Attempts to offer demonstrations and experiments, explicitly and exclusively designed for the sole purpose of teaching the fundamental facts and theories of pure chemistry and physics, are as recent in museum halls as are the occasional exhibits dealing with nature as the environment of man, and not as a paradise lost.

Although the fields of the natural and the exact sciences were, as we have seen, invaded from opposite ends, it is also true that they were both entered into from a common point of departure in everyday experience. In our daily lives we are rarely aware of any direct contact with the forces and substances of pure chemistry and physics. It is only when we harness them to serve our needs that we become really conscious of the powers that are the concern of the exact sciences. We experience the thermal expansion of gasses by observing a steam engine in operation, not by being witnesses to an invisible demonstration of the pure principles at work in the atmosphere. But in natural history the prime objects of purely scientific research are equally visible, though not equally understandable, to layman as to scientist. When the museums began it was, in fact, extremely difficult to draw a valid distinction between amateur and professional in the natural sciences, while the gulf between scientist and layman was already widening in other disciplines, leaving the average person better aquainted with the inventions than with the discoveries of

science in these subjects.

With the passage of time there has been some marked changes in the relations between the museums and the general public, and the changes have differed according to the field of knowledge represented. In the beginning all museums were reluctant to admit children and young people into their august premises. Today the administrators of museums of technology and of natural history triumphantly proclaim, or woefully admit, that the dominant element in their audience is under age. Superficially this might make it seem as though the two types of scientific establishments had shared a common fate. Actually it is a case of similar results flowing from different causes.

After we have completed the formal education and training of our early years, informal experience continues to add to our fund of insights and information, but the pace of our learning becomes slower, and its path through the fields of knowledge much narrower than it was. The spectacular growth of the exact sciences makes it impossible for most of us to keep abreast of our technical and scientific advances, except to the extent that new discoveries directly affect the performance of our own particular tasks in life. Even with the fullest appreciation of the social and economic significance of new inventions, the adult, after entering the ranks of those who work for income, finds himself more and more at a loss to understand the inner mechanism and operation of the contrivances he sees or hears about, and even of many of the appliances that he himself uses. The touching and once commonplace scene of a father explaining to his son the working of a tool or a simple hunk of machinery, is being replaced today by the mildly pathetic spectacle of junior trying very hard to make his elders understand the principles that make some everyday piece of equipment function at all. The result of all this is a growing sense of alienation between ourselves and the increasingly mysterious tools of existence on

which we become more and more dependent as the years pass.

In these circumstances it is unavoidable that adult interest in the newest marvels of technology must, in general, become more superficial with increasing age, and may often turn into subconscious or even overt hostility. In a museum of science and industry I would expect to find the most responsive, and therefore probably also the largest audience of voluntary visitors among teen-agers and very young adults, but not among children and older people. These expectations are in full accord with what I have been able to observe and with opinions received from science museums. It would be of considerable interest, and not very difficult, to get some quantitative statistics on this and similar questions of comparative attendance, if a joint attack on the problems could be organized, and some support obtained.

On my tours of reconnaissance I have also gathered the impression that wherever there is a choice, those who give the greatest attention to exhibits of an historical character, in science museums, are usually to be found among visitors in, or beyond the middle years of life, while these often show relatively less patience in front of the latest novelties that so entrance the younger members of the company.

Among the natural history museums we find a very complex situation, with an assortment of institutions serving a great diversity of ends by a multitude of means. Forgetting for the moment the "trail-side" museums, which it would be better to consider separately, or in other connections,—and also leaving out many of the university museums that offer their extremely valuable services to specialized audiences in substantial isolation from the general public,—it is correct to say that nearly all other museums of natural history are located in towns and cities. But it does not necessarily follow that their obligations to society are the same. The particular function of the population center in rela-

tion to the surrounding country is a factor of importance in trying to understand and improve upon the museum's role in the community.

If the borough still serves the pristine purpose of providing an outlet and a trading center for a large rural area, aspects of nature continue to hold an important place in the problems and affairs of adult existence. This occupational awareness of the relationship between man and his natural environment transmits itself to the young, who, even in rebellion, develop their mental and physical habits largely by observation and imitation of their elders. In such a community a museum devoted solely to the objects and events of nature may find a ready and knowledgeable response at all age levels, without having to deal with the deeds and artifacts of man in its own exhibition program. This would also be true of mining, fishing and lumbering towns in more specialized areas of subject matter.

But in the megalopolises, swelling metropolitan districts and burgeoning urban belts of modern civilization the situation is quite different, and these are the surroundings in which most museums must seek their goals and develop their methods. Adult thought and action revolves around the problems and tasks of finance, manufacture, commerce, communication, and the secondary chores of service, entertainment and transportation,—all far removed from the primary sources of natural support for national existence. Nature's abundance and deficiencies seem part of another world, scarcely related at all to the realities of megalopolitan life. Even as he commutes from home to work, and back again, and roams about between cities on his urban errands, the busy grown-up can, and does, shut himself off from the passing pleasures of nature that once could be enjoyed en route. Scurrying from place to place encased in an automobile surrounded by other cars, or rushing through the air to more distant destinations, he eliminates or overpowers the odors and sounds of spring which once delighted him, on foot or on horseback. The width of roads and speed of cars,—not to mention the view from six miles up, going ten miles per minute,—make it

impossible to see anything less than a bird of fair size, and even these are out of sight before full notice can be taken. Only a child moves slowly enough, and close enough to the ground to see the caterpillar and the toad in the normal course of everyday travel in an urban environment. During the years of his most vigorous struggle for family and future neither his occupation nor his surroundings can reasonably be expected to give the city dweller an absorbing personal interest in the ways of nature. But for the child, whose mind has not yet been preempted by the urgency of practical considerations, the charm of all creation still retains its fascination. And it does not seem illogical to expect that the spell of nature may be in some degree restored after the fight for survival has passed its peak, with partial release of our minds for greater enjoyment of the "impractical" experiences of leisurely pursuits.

The natural history museums of our metropolitan communities began, like all the others, as establishments exclusively dedicated to the interests of adults. But whether, or not, their custodians are emotionally prepared to concede the obvious, it is perfectly clear that these institutions have now become primarily museums for children, with adults playing only a minor, and mostly a secondary, role in the audience. To get a measure of what has transpired it is only necessary to observe and compare the relative numbers of adults unaccompanied by children that can be found wandering about by their own choice in metropolitan art galleries and in metropolitan museums of natural history. While exact statistics are not available, it appears to be the universal consensus of all observers that unattached adults constitute a vast majority of the voluntary visitors among the works of art, but only a small minority of those invading the premises of whales and habitat groups.

To bemoan the results of irrevocable social changes would be a ridiculous waste of time and energy. To take realistic account of the consequences is part of constructive planning. In regard to our reliable and enthusiastic audience of the very young, it would seem the better part of wisdom, as well as

courtesy, to make our messages both visually, linguistically and intellectually a little more amenable to those who are, at least, a generation beyond ourselves in the evolution of our cultural tradition, in spite of anything we may snort or claim about it. Many museums even today continue to act as if the millions of their visitors were largely made up of senior scientists. While the knowledge we have to offer is, of necessity, the product of past effort, its presentation must be increasingly entrusted to those who have made it their special business to follow and attempt to understand the mood and mentality of the present and the foreseeable future.

It is not my intention to go into further details concerning our services to the youthful and faithful. Instead I prefer to discuss the possibly less important, and certainly more difficult, problem of attempting to regain a more important place for the natural history museum in the adult intellectual life of the metropolitan community, outside of the narrow, and not unprejudiced circle of friends of the museum. But first we must complete the tale of woes that have beeen brought upon our beloved establishments as by-products of the industrial revolution, population explosion and technical progress.

It is not so long ago that man was able to find in nature stirring symbols for his own most daring material or spiritual ambitions, and sources of horror for his most frightening nightmares. A soaring gull would lead the mind across the oceans, as the eagle lifted it beyond the mountain tops. But today we ourselves fly higher, farther and faster than any bird. The languid power of a lion seemed to express the strength and freedom gained by an inner victory over the whims of fate, which a "noble savage' might share, but civilized man had lost. Now the king of beasts is a charity ward of man, dependent upon his protection. And no volcanic eruption holds such terrors in store as a man-made atomic explosion. Nature has irretrievably lost a great deal, perhaps even most, of the emotional im-

pact that could formerly be counted upon to maintain an adult visitor's interest in what he might find in our halls.

Is there, then, any direction in which we may seek new strength and compensation for the handicaps we can not eliminate? At the bottom of our trouble lies the fact that urban man has become alienated from the land that feeds him. Of his own experience he knows nothing about the relationship between his own problems and those of nature. An extended mediating chain of people and machines has so attenuated and depersonalized his own connection with this area of human affairs, that he may be entirely unaware of being personally involved in the relationship in any manner at all. It is the greatest opportunity as well as a principal duty for the metropolitan natural history museums to create this awareness that daily urban experience does not generate, and to make the relationship between man and nature entertaining and understandable as an interesting and important aspect of national existence, in which each of us has a share, and a role to play, however remote it may seem before we learn the roles. If this is our aim, and these are our circumstances it is clear that the museum of natural history in the narrowest traditional sense, treating only of everything else than man and his works, has now become entirely antiquated as an educational instrument of a metropolitan community, and so have also the more broadly conceived establishments that deal with the history of man and the mysteries of nature as subjects entirely separate and apart. To fulfill our mission and regain our status among urban, adult attractions we must bring to the fore of our attention the unceasing interaction between nature, as the environment of man, and man, as the principal occupant of his habitat. To the extent that we continue to neglect or minimize the ecological problems and experiences of our own species, society will quite properly continue to undervalue our potential services, except as a nice place to bring the children. ❖

The Functions of Museums: Research Centers or Show Places[1]

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

The subject assigned to me for this occasion is a very broad one indeed. The title of my theme does not refer to museums of ceramics, or paleontology, or transportation, or some such simple topic as these. It grandly embraces the entire genus museum without quibbling about petty details. It also covers the range from research to entertainment, casually including, by implication only, the entire territory of education, which falls between the given bounds of my subject. I am sure that there are many who could speak much better and more wisely on matters of such unlimited scope, but perhaps few would be reckless enough to do it.

Anyone who accepts such a challenge to jump in over his head has a crucial choice to make before he leaps. He may stay safely within the limits of his certified professional competence, at the danger of becoming tiresome to the many whose purposes and problems lie in other fields. Or he may roam widely and wildly through the disciplines, with an even greater likelihood of becoming obnoxious to one and all. Since I feel an urge to try the latter course, I should explain at the outset that my own career has been spent entirely within museums of natural history, including anthropology, and when I speak of such institutions I may claim to speak as a professional, at least in an administrative sense. When I mention museums of other kinds, I speak only as a vociferous member of the visiting public. Actually, of course, it will not make much difference, since I hold equally strong opinions in either capacity.

The connotations of the words "education" and "research" have both suffered the effects of an inflationary process, at least in the English language as spoken in my country. If you read two books on the same subject, or

[1] Address delivered at the Sixth General Conference of the International Council of Museums in The Hague, July 9, 1962.

look it up in the "Encyclopaedia Britannica," you may flatter yourself with the knowledge that you have been "researching" the topic of your interest. But in this context we shall use the word "research" only in the classical sense of the search for knowledge that will be new to all, and not in the sense of the Second Assistant Picture Editor of the Illustrated Weekly Mistake. Without denying that a visit to the wax works or the tunnel of love may be a very educational experience, we shall also limit the word "education" to functions that have for their primary purpose the communication of systematized knowledge and understanding from teacher to learner by any method of transmission that will not unduly distort, dilute, or defeat the intent of the process. As to our ideas of what constitutes entertainment, one man's funeral is another man's fun, and there is no need to restrict our definition of merriment at this point.

The question of museum research, education, or entertainment is a question of over-all institutional purpose and of the demands upon each function created by the general intent of the museum's very existence. It is not a question of seeking a reasonable balance between independently performed services, each separately and sufficiently justified by its own quiddity and qualities alone. This is not a popular point of view among all museum people, particularly not among the champions of research as the overriding obligation that should set the pace and pattern for all of the museum's functions.

It seems to be commonly taken for granted that the problem of providing for research first arose in the museums of natural history, and the assumption appears reasonable enough to serve as a useful starting point for our discussion. A museum can cater to research in two different ways, for essentially three different reasons, with many minor variations and recombinations of means and motivations.

Acquisitiveness undoubtedly long preceded, or at least dominated over, intellectual curiosity in the historical evolution of the establishments that became the museums of today. But it soon became necessary to have some sort of expert keep record of the acquisitions in order to enjoy the full pleasure of possession. This need to identify, evaluate, and keep order in the collections still remains one of the chief reasons for maintaining research positions in museums of natural history.

At a somewhat later stage, particularly in the third quarter of the nineteenth century, more than one new museum was established on the explicit or implicit premise that it would not itself maintain scientific research positions, but would merely serve as a source of study materials for the scientific community that obtains its own support from colleges, universities, and similar institutes of higher education. This second, and less generous way of giving aid to research soon proved to rest upon a very false optimism about the circumstances and prospects of the times, although the

hopeful expectations may seem in retrospect to have been only slightly exaggerated and very premature in their day. The museums that survived their initial miscalculation would, before long, be forced by necessity to engage the paid services of personnel with research qualifications for the care of their growing collections.

Toward the end of the nineteenth century a wave of grandiose idealism gave birth to the notion of a moral obligation to engage in research for its own sake, without regard to practical institutional needs. As a rousing theme for after-dinner speeches the idea was fine, but the museums that took it seriously were likely to find the proposition a fragile reed to lean on in an hour of need. Unfortunately the laws of necessity give stronger motivations than those imparted by the obligations of nobility. Science for science's own sake, which is the second reason that has been advanced for museum support of research, is more likely to weaken than to strengthen the cause it ostensibly advocates.

The third reason for research does not derive from the needs of the museum's collections, but from the wants of its educational functions. The relationship between good teaching and original scholarship on the part of the teacher was first recognized in the universities. The degree of dependence of one upon the other is a function of the level of erudition on which information is transmitted and insight communicated. In museums this, in turn, is largely a function of size. The educational requirements of an elementary school or a small museum will not exhaust the funds of knowledge available from general sources of information. But a large museum and the graduate schools of universities must use information that has not yet become part of the common lore of textbooks and encyclopaedias, and which is therefore available only to those who themselves contribute to its growth. This does not mean that the museum has to conduct original research on all the principles and phenomena it deals with in its exhibits and other educational activities, any more than a university professor is confined to speak only on the subject of his own investigations. What it does imply is simply that only the needs and rewards of personal research can offer adequate incentives for the endless struggle to remain abreast of the advancing frontiers of knowledge. The cost of the museum's own research is merely the price it pays for immediate and uninterrupted access to the results of all research within the scope of its educational commitments.

Although the umbilical cord between teaching and research is long and elastic, it is not without limitations. The quality of instruction in marine biology is not maintained by original scholarship in Sumerian archeology. The natural history museums provide an illustration of the manner in which educational obligations may affect the scientific program. In the beginning these museums simply put on display selected individual speci-

mens from their collections, if they did not actually show them all. The information they needed concerned only the identity, relationships, and physical peculiarities of their samples. The research they engaged in was virtually limited to anatomy and classification. Later, when the habitat group and other devices committed the museums to teach about the normal life as well as the dead bodies of nature, it became necessary to enter into new fields of research, notably the field we call ecology. A drastic change in the relationship between exhibits and collections occurred at the same time. It is impossible to recreate the natural environment of the species by the use of natural specimens only. Very soon the natural constituents of a habitat group became only a small fraction of its total contents. And the real specimens that are used in such exhibits are no longer available for research purposes, as were the individual birds on their wooden perches that could so easily be taken off the display shelves for closer examination at any time. In their biological departments the modern natural history museums have therefore come to an almost complete divorce between their exhibits and their research collections, which further accentuates the dualism between the research requirements arising out of the educational program and those that are based upon the ownership of collections. The former puts a premium upon biological information; the latter, upon the systematic classification of specimens.

It is extremely difficult to avoid seeing in this division of labor the possibilities for a division of establishments as well. Large central repositories for natural history collections, which would also serve as centers for identification and systematic research, have already been proposed more than once. Their operations would combine functions similar to those of a bureau of standards and those of a central reference library. This would leave the museums, as educational institutions, free to concentrate upon the pursuit of biological subjects both in their teaching and in their research.

The cleavage between exhibits and collections, and between two kinds of research, is much deeper and more clear cut in zoology and biological anthropology than in other museum disciplines. It would be impossible, for instance, to have quite the same situation develop in paleontology and archeology where the dead specimens of the past give us our only direct avenues to the knowledge that we seek and we teach.

The family problems of the zoological museums may not be widely shared by other institutions. But they are useful reminders to all that a museum may be only a collector's hoard, or a teaching instrument, or a research center, and that, if we try to combine all three in one institution, it may be very wise to leave no doubt about what we recognize as the museum's primary purpose from which its needs for the other features and functions are derived. In this connection two sets of facts are of great im-

portance. The maintenance of a hoard requires research of a certain kind, but this research does not necessitate exhibition or the performance of any other educational function. On the other hand, good teaching and didactic display also demand the backing of research, but often of a different kind from that which is based upon collections. And these educational functions are in no way dependent upon the possession of hidden treasures, not visible or available to the public. It is obvious that our choice of primary purpose is a real one, with real conflicts involved. It is not simply a matter of selecting the most opportune name for whatever we intend to do regardless of what we call it.

Many of the older museums were undoubtedly first established in order to house and care for collections. There are probably some that can still rest easy in the knowledge that they receive their support as specimen archives and do not need to worry their consciences with doubts about the nature of their mission. But the current support of most museums, even those that began as pure treasure hoards, is unquestionably based upon the educational services they offer the public and the prestige their exhibits bring to their sponsors and to the community. The tenor of our pleas for the means of our existence would for most of us be blatant hypocrisy if, in the secrecy of our souls and the subtle nuances of our actions, we did not recognize education through exhibition as our primary function and exalted collections and research to a higher place in the hierarchy of our moral obligations.

This concept of research as a derivative rather than principal purpose may affect the nature of the research conducted by museums, but it does not weaken the foundations for scholarly inquiry. Quite to the contrary, research as a requisite of good teaching is easily defended, while research as an essential for the maintenance of concealed collections may be extremely difficult to justify and may raise considerable doubts about the good sense of keeping such collections at all. Certainly no human activity obeys Parkinson's law more clearly than does the eager accumulation of museum treasures. Collections require curators who acquire more collections that demand associate curators, and so on *ad infinitum*.

What has happened in the museums of natural history can probably be generalized into a guiding principle for all museums. To the extent that we are no longer merely showing our specimens but are also attempting to tell things with them and about them, it is not only appropriate but may be necessary for us to conduct research upon all the things that can be told of and by the items we display. Research upon the static form and identity of an object loses significance as its functions and its cultural, technical, or scientific relationships gain in importance.

Just as our educational mission determines our need to do research, so should it also determine the amusements we offer. There are essentially

two different ways of enhancing the intrinsic entertainment value of the materials we display. We may artificially exploit unusual and insignificant events or bizarre but unimportant aspects of the subject we deal with. Or we may inject legitimate humor in our presentation of the true essentials of our fields of knowledge. In an educational institution sensationalism and genuine humor are mutually exclusive. A museum that stoops to false dramatizations and unwarranted exaggerations of the spectacular cannot afford to smile at what it is doing. Sensationalism exacts pomposity, although the reverse does not hold.

A hundred years ago the natural history museums were riding the crest of the wave. All the world seemed open to the adventurous, and the samples of nature beyond the horizons were food for the dreams of a better future. The theory of evolution lent special excitement to many features of the show to be seen in museums and zoological gardens.

But, with the passage of time, museums of art, cultural history, and other humanistic subjects grew and multiplied much faster than those concerned with the natural sciences. After the First World War the shift of public favor away from the museums of natural history developed into a virtual process of attrition in many parts of the world. It is of considerable interest to note that the attrition always seemed to hit hardest where the museums most obviously embraced research as their primary obligation. There are even cases in which a new children's museum devoted entirely to education, with emphasis upon natural history, has appeared within the same community in which a more academic museum with pride in its research was forced to give up the struggle only a few years ago.

Quite recently the natural history museums in our country would seem to be catching a slightly more favorable breeze, and I hope the same is also true elsewhere. One might think that this harbinger of release from penury would be the signal for putting into effect the high ideals developed by years of soul-searching in straitened circumstances. Unfortunately this cannot at all be taken for granted as a matter of course, but must be fought for even harder than before. It is very easy to be idealistic so long as we have nothing to lose for our ideals. When the winds of prosperity turn our way again they also bring the temptation of increased rewards for opportunistic solicitation of public attention and favor by newsworthy rather than worthy effort.

It is the misfortune of the natural history museums that they are not able to create a sensation simply by the price they pay for their specimens. The temptation to try to draw notice by other, and even more nefarious, methods is therefore that much harder to resist. When the privileges of poetic license are claimed in the halls of science it is time to take warning, and resubmit our thinking to the judgment of our intellectual consciences.

A relaxation of the rules of admission for new exhibits is already evident.

It used to be that the natural history museums would not permit themselves to show any details of natural events and environments that had not been verified by direct observation, and that the entire situation portrayed in the exhibit would have to illustrate a normal and usual condition of life for the species involved. Exhibits based only upon more or less well-informed and intelligent surmise are infiltrating our halls, and the commonly characteristic is often set aside in favor of uncommonly spectacular but actually unimportant actions and circumstances. Perhaps some day soon the absence of positive disproof will take the place of proof positive as justification for our public spectacles.

It is very important at this point that the evils of dramatic license should not be confused with the boons of dramatic presentation, which are to be greatly desired by all museums. In order to educate, the museum must amuse, as a good teacher amuses by unaccustomed constellations of truths seen from a humorous angle. But not by the caricaturist's comic distortions of the truth itself. If we should feel a pressure upon us to be amusing for the simple sake of amusement, we must be honest enough to admit to ourselves that in the world of entertainment our only competitive advantage would be the low price of admission to our show. If those who come in search of amusement were charged with the cost of our performance they would stay away in droves. Education must always remain the star by which we set our course, with entertainment serving only as a means of reaching the goal we seek.

The expression "museums of science" has, at least in America, come to mean museums of applied science, or technology, a word that is also often used in describing them. When museums of science and technology are secure in their support from established endowments and official sources, they show admirable intellectual and pedagogic discipline in their exhibition program. But, when current gifts in kind or in cash are an essential element of their existence, the museums of technology face far greater temptations than most to let the wishes of donors prevail over other considerations. In these circumstances it is sometimes necessary for us to look with forbearance upon the trade-fair spirit of exhibition halls in which promotion and entertainment would seem to have gained the upper hand over the needs of visual education.

It has been said that the museums of science and technology deal with science as a humanistic rather than scientific subject, and the statement has considerable merit. At least, I would be inclined to agree with those who consider cultural history and sociology the areas of knowledge in which the technical museums could make the greatest contribution to general education and in which they would therefore also have the greatest need for research. It goes without saying that a museum displaying a mo-

torcar must know how it works and be able to communicate this knowledge through its exhibits. There is also no denying the value of creating a better understanding of the inventions that already serve our needs, and of stimulating the mind to new inventiveness. But basic principles are nearly always known before they can be applied, and the nature of an invention is explicit in its design. It would consequently seem that there is little need for the technical museums to engage in either pure or applied research in order to understand and explain the materials they deal with. On the other hand, there is no such well-known or self-evident information available for the interpretation of the historical process by which one invention leads to another, or for the exposition of the material consequences of technical progress. The evolution of technology and the impact of inventions upon the dynamics of human existence are subjects to which the museums of applied science might well give prime consideration, both in their educational program and in research. Certainly, no other kind of establishment could be in an equally good position to contribute to the growth of our knowledge and understanding of these important matters.

Technical museums are often highly specialized, more so than any others. We have museums of firearms, railroad museums, museums of glassware, and many, many others. Among the subspecies are institutions considering themselves to be museums of the history of science. The claim might be acceptable in the sense in which we accept the designation historical museums for another category of institutions. But a discrepancy between the connotations of a name and the contents of the nominee establishment is always likely to prove confusing even to its own proponents. So far as I am aware, the museums claiming or aspiring to be museums of the history of science are actually only highly specialized technical museums devoted to research technology. Their specimens help us to understand how science has made its discoveries, but they neither reveal nor explain the discoveries themselves. The microscope is an example of applied optics, which incidentally might help to illustrate many optical principles. But it is not a specimen of biology, mineralogy, medicine, or any of the other sciences in which it has had the greatest use, nor does it in its own properties give a demonstration of any of their principles. The history of scientific instrumentation is not the history of science, and it is no service to the public to create the impression that it is.

Returning for a moment to subjects with which I have, at least, had personal administrative experience, I would like to say a few words about the special plight of ethnography. Traditionally ethnography compares cultures in space as history compares them in time. But as the contents of space become more and more homogeneous, comparisons in space become less and less meaningful and interesting. The desperate efforts of

many ethnographic exhibits to halt the march of time may arouse our sympathies at first but become tedious and annoying after a while. Each passing year increases the tacit mendacity of the omnipresent exhibits of "national" garb, shown without adequate warning to the visitors that what they are seeing is apparel of the past worn only as festival costume today. A series of exhibits truly depicting the actually prevalent manners and mixtures of dress in their world-wide diversities and similarities, at stated intervals of time, would, on the other hand, always be welcome and of enduring interest. We may all arrive at the same destination in the end, but the ways by which we reach it will be different, and the differences of the past become more fascinating the less there remains of them in the present. The time approaches when ethnographic exhibits must become either a matter or a method of history. If their evolution takes the latter course, as I hope it will, the ethnographic museums will become closely akin to the folk museums, with the former having for their domain the study and presentation of the comparative cultural history of all mankind, while the latter enlarge upon the history of material culture within national or regional boundaries.

If ethnography evolves into cultural history, what becomes of the museum domain of history proper? The question can never be unequivocally answered, because there will always be an overlap of functions between museums of history, technology, ethnography, and art. Their differences are more clearly revealed by their omissions than by their inclusions of materials and topics. It is not sufficient or even correct to say that these are differences in point of view, because historical attitudes and perspectives tend to prevail also in the other museums we have just mentioned. The institution simply dedicated to the preservation of memorabilia of great or notorious persons and events is, of course, easy to describe, but the historical museums that try to deal with their subject in more general terms are quite difficult to define in an unequivocal manner.

I have tried to think of some way of separating the tools and processes of history from its causes and its products. I thought of the history of a settler's new house in the wilderness. The causes are the reasons why he left the land of his past and the circumstances that made a shelter necessary. The house itself is the product. The history of the house is the act of building it, and the tools and materials of its history are too obvious to mention. This seems beautifully simple, but I, at least, have unfortunately not been able to generalize its simplicity. However, we do know that there are museums that try to deal with history *per se,* even if we are unable to give a precise meaning to the word.

These history museums are capable of giving invaluable service on safe grounds so long as they confine themselves to the documentation of their

subject and the evocation of the manner, means, and circumstances of the historical procession through the ages. The weapons and panoplies of war, the pamphlets, banners, and ballot boxes of politics, the treaties and proclamations of statesmanship, the fashions of the fashionable, and the appurtenances of daily life cannot explain our history, but they may make it much easier to visualize the events of our past and to grasp the explanations obtained from other evidence.

Demonstrations of the acceleration of gravity or the mechanical laws of collision are actual proofs of what they proclaim. Columns of shells sorted by biometric characteristics offer a real example of natural variability, not merely a visual illustration of variance. Unfortunately it is never possible to offer similar museum expositions of the actual evidence for our theories of historical progression. The causal relationship between the Industrial Revolution and its consequences cannot be demonstrated before the eyes of the visitors by repeatable experiments, or by actual specimens containing within themselves a complete example of how the relationship functions.

This inability to present the actual evidence for historical conclusions puts definite moral as well as intellectual restrictions upon the proper functions of history museums. Those that observe the obligations imposed upon them by these limitations can play a very valuable and important role in the enlightenment of man. But history museums that pretend to explain the inner dynamics of the historical process by means of their exhibits can actually only offer interpretations derived from historical theory in the guise of evidence for the theory itself. In other words, such museums become propaganda museums for a staff point of view.

We now come to the museums of art about which I know even less than I do concerning the other things I have been so gleefully discussing up to this point. In the depth of my ignorance, I have placidly assumed that as a scientific institution is valued by the truths it communicates, so should a gallery of art be measured by the beauty it conveys. But when art museums apply themselves to research, they seem to direct their objectivity toward the study of history, chemistry, physics, in short toward everything except the true essence of the treasures in their custody. Among the most spectacular results of these dedicated efforts are the triumphant and repeated revelations of how shockingly unobjective art museums are about art and beauty. Personally, I would gladly exchange the opportunity of gazing at the Elgin marbles for the privilege of again admiring the heroic Etruscans that now seem to have been chronologically out of order.

If we close our eyes and review our recollections of the art museums we have seen, the contradictions are easily understood. The composite image that forms in our minds is the image of a museum of the history rather

than the quintessence of art. This is, of course, not a matter of contents, which might be the same in either case, but of design—of the pattern of experiences an institution offers to its visitors.

For confirmation of our image we need only look to the terminology voluntarily adopted by the establishments themselves. There are museums frankly dedicated to ancient art, and others that are given the role by implication when a separate gallery of modern art is born in the same community. After a while, the museum of modern art becomes so fascinated with its own role in history that it also becomes historical in its attitude. Now, perhaps, a gallery of contemporary art moves into the breach, with a firm resolve never to grow old and historical. But who can tell?

I have absolutely nothing against the history of art. On the contrary, it is a fascinating subject, with intriguing parallels in other studies of evolution. But I shall still go on looking for at least one museum of timeless art among all the period galleries of contemporary, modern, medieval, or ancient expressions of man's artistic urge. Could there not be some places where one could simply be in love with art as with a woman, without always having to be reminded that after all she did descend from a hairy ape?

Perhaps the reason why I have not yet found what I am looking for may lie in the research traditions of art museums. While the need for research in museums as in universities derives from the necessities of their educational functions, it is also true that the results of research will always demand didactic expression.

Art is a medium of communication by esthetic experience. It is designed to move our minds as the vehicle in a museum of transportation is made to move our bodies. A knowledge of how the mind functions in the perception and apperception of art is therefore quite as essential for an interpretation of the meaning of art as is a knowledge of the laws of gravity and of the thermal expansion of gasses for the explanation of an automobile. The technical museums can rely upon having the principles of physics studied elsewhere and upon finding the application of the principles self-evident in the objects of their concern. But the art museums face an entirely different situation. If they do not take an interest in the processes that link the mind of the artist to his art, and the art to the mind of the beholder, there is not much reason to hope that others will. Nevertheless, the art museums are largely innocent of sponsorship or contribution to what little we know of the mysterious ways of the spirit that produce our overt responses to the art they place before us.

But it is never too late to reform. And perhaps the day is not too far away when art museums will include, as normal features of their program, the psychological study of esthetic experience and artistic expression, of the affective, cognitive, sociological, and biological determinants of our

sense of beauty, of the logic and the analytical geometry of abstraction, and many similar facets of man's relationship to art. And, when this ultimately happens, I can finally hope to find myself some day in an exhibit that does not primarily aim at increasing my awareness of the passage of time, or my mental saturation with the works of a particular school or individual, but simply tries to help me reach a higher communion with all art and a deeper insight into its meaning, without regard to time, place, name, or cost.

A Plurality of Professions

A Plurality of Professions

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The problem of providing and demanding professional training in museology has become one of the foremost issues of debate among those who work in museums. While all must favor anything that can be done for the improvement of individual and institutional performance, it is difficult for some to become enthusiastic about the introduction of means without clearly defined ends and fully discussed consequences. The ends of specialized training and education relate primarily to future individual functions, while the consequences that concern us lie chiefly in the fields of organization and personal status. Let us therefore begin with an examination of the responsibilities for which preparation should be offered to, and required of museum workers.

In the current discussion the word "curator" is commonly construed in a vaguely generic sense, as though it included all practitioners of museology, but applied according to the convenience of the argument, with very specific reference to those who actually hold the title. Since it is generally agreed that museums are educational institutions it is often taken for granted that curators are, at least in part, educators working among other educators in museums. The needs and circumstances of curators therefore invite comparison with the conditions of educators in other kinds of institutions (Parr, 1958, 1960, and 1963; Glover, 1964). But, when such comparisons are made, it is very important to remember that our centers of primarily visual education in the aggregate, and often within a single museum, function on all age and intellectual levels served by the nation's entire system of establishments for primarily verbalized teaching (Parr, 1958). And these other establishments do not form a unified category within a single institutional classification with uniform personal titles and professional prerequisites. The problems of museum workers are not made easier to solve by oversimplified comparisons with the difficulties faced by the "teaching profession," without further definition of the particular

profession referred to. If we use untenable generalizations to escape conflict and difficulties today, we shall only bring more corrosive strife and greater predicaments upon ourselves at some future time.

The educators of the classroom arenas actually fall into two very distinct and well-defined classifications, namely, teachers and professors, if we may use the terms in their vernacular sense. Special training in pedagogic techniques, often combined with apprenticeship experience, are almost universal requirements for service on the teaching staffs of elementary and secondary schools. But it is an equally universal fact that the records are never searched for evidence of attendance at "education courses" or other pedagogical training programs in considering appointments to the professorial faculty of a university (except, perhaps, in the university's own department of education). Thanks to progressive education, "teacher" and "professor" would seem to have acquired far more meaningful differences of connotation than the words originally possessed. To the teacher, mastery of the methods of communication, applicable to any subject, comes first. To the professor, intimate familiarity with the contents of what he professes is the supreme necessity. While nearly all teachers have gone through approximately the same preparation for their careers, the deans of music and of medicine, or the professors of history and of mathematics are unlikely to have in common any professional training whatsoever. Glover (1964, p. 11) refers to "enrollment of practitioners in *an*[1] established organization" as one of the accepted characteristics of a profession. The practitioners of education in schoolrooms and lecture halls do not join in a single organization for the protection of their professional interests, but enroll, instead, in quite separate associations for school teachers and for university professors. It has always been my hope that a similar division of museum workers could be avoided, but we must all recognize that a sharpening of definitions and of criteria of competence will make fragmentation more and more difficult to escape. This will be particularly true if we continue to let the horizontal structure of guilds, trade unions, and professional associations, rather than the vertical framework of industrial or institutional organization, set the pattern for our thinking. Personally, I place a higher value upon the preservation of individual mobility than upon the protection of professional status and privilege. If a more rigid system is unavoidable let us, at least, do what we have to do with open eyes, and stop looking to other walks in life for easy models to emulate.

The comparison between museum workers and librarians is also likely to prove more misleading than enlightening, but for a different reason. The primary purposes of a library do not require the diversity of virtually unrelated talents demanded by a natural history museum. Although

[1] Italics mine.

Leonardo da Vinci was able to perform with distinction both as architect and scientist, artist and engineer, such disparate natural gifts and professional skills are to all practical purpose mutually exclusive. The museum administrator who bases his organization plan on any other assumption is living in a fool's paradise, from which he will soon be evicted. While many libraries do design, create, and install exhibits, and many librarians write books and engage in research, these are not mandatory features of basic library functions, and I believe it is true to say that a professionally trained librarian is familiar with, and able to carry on all tasks directly related to the library's essential reasons for existence. It is not possible to combine in a single person a similar command of all the professional skills that must be united for the proper fulfillment of a museum's most fundamental responsibilities.

If we are trying to define a training program we must, first of all, define the functions for which we want to offer a suitable preparation. Glover (1964, p. 14) undoubtedly speaks for a large number of museum practitioners when he offers the "interpretation of objects for instruction" as the central and most distinctive feature of museum work. The statement is not without bias. It obviously places the one who knows and understands the objects, presumably the curator, in complete command of museum performance. Nevertheless it would take a wisdom greater than that of Solomon to effect a truly just distribution of credits for final results between the curator, the designer, and the artists who create the physical reality of the exhibits. When we speak of establishing our professional claims, let us not dodge the issue, but say quite plainly whether, or not, we are talking of a single profession for curators, designers, and preparators, with joint training programs for all. A large number of those working in all of the three capacities already enjoy professional status, but as members of different professions. And the list does not, by a wide margin, exhaust the number of separate professions that may be concurrently engaged in the operation of a museum.

Actually, Glover's definition of museum purposes is somewhat ambiguous, perhaps because it attempts to generalize for all museums. Protesting in behalf of the art museums against the "capital stress . . . laid upon the educational functions of public museums," Gilman (1918, p. 89) was able to express himself far more unequivocally by recognizing the distinctions that may exist between different types of institutions. According to Gilman (1918, p. 92) "an art museum is a selection of objects adapted to impress; a scientific or technical museum is a selection of objects adapted to instruct." Gilman (1918, p. 94) makes a good case for the statement that "neither in scope nor in value is the purpose of an art museum a pedagogic one." By this statement Gilman does not, however, associate himself with the philosophy that sees scholarship as the primary

function of museums, as has recently been implied. On the contrary, according to Gilman (1918, Preface, pp. X, XI) "a museum of art is primarily an institution of culture and only secondarily a seat of learning," its "controlling purpose" being aesthetic, and only "its subordinate purpose scientific."

When Gilman speaks of "objects adapted to instruct" he does not think of the objects as articles to be interpreted, but rather as visual aids to the explanation of scientific principles. When we say that the foremost purpose of a scientific museum is the interpretation of ideas by the use of objects and three-dimensional demonstrations, we are therefore speaking in complete agreement with Gilman's reasoning. In the exposition of ethnography, archeology, cultural history, and technology the interpretation of objects undoubtedly does represent a major task, but in museums of the fine arts and pure sciences such elucidations of specimens or *unica* fulfill only a marginal need, like footnotes to the main text.

When the object is part of the medium rather than the principal subject of visual communication, the curator no longer has an unchallenged hegemony over the show. There is, in fact, ample evidence of the rapid development of a branch of professional exhibition design specializing in educational display both within and without our museums. These designers must, of course, rely upon information and materials obtained from the curators, but cannot be expected to function well in a subordinate manner, even if they should be willing to accept a junior position in the scheme. Present indications seem to point quite clearly towards a diminishing role in exhibition for the curators of our largest and most learned museums of the sciences. The trend is in no small measure due to the attitude of indifference towards the demands of visual education shown by many curators to the detriment of all. However, the trend is not likely to prove reversible, and has probably only been hastened rather than initiated by curatorial dispositions and inclinations.

More than twenty years ago Low (1942, p. 23) urged that "the curatorial function of arranging exhibitions should fall more and more under the aegis of the educational department" and that "the curator's control over the use of his material (*i.e.*, for display) must be modified to fit the interests of greatly extended and far more powerful education departments." Discussing the National Museum of Canada, The Canadian Royal Commission On Government Organisation has very recently (1963) observed that

> the link between the scientific staff and the exhibitional-educational activities of the museum is tenuous, and becoming more and more so. In fact, . . . the scientists do not exist to contribute to the Museum exhibits, and most of them prefer to have no responsibility for them. Some types of exhibit are related to fields of science or human history not

> represented in the scientific staff. Technical advice concerning them is secured from other government departments active elsewhere.

The Commission goes on to say that

> if a museum is to be more than a mere repository of objects of interest, it must have close ties with research related to its exhibits, but this does not imply that it must necessarily undertake the research itself.

These statements have proved quite abhorrent to most museum administrators. But, when pressed for their opinion, many are forced to concede the validity of the commission's premises for large public museums in general, while entirely rejecting the conclusions drawn by the commissioners. Actually, the "Report of The Commissioner's Committee On Museum Resources in the State of New York" is essentially in accord with the findings of the Canadian Royal Commission when it recommends the establishment of "satellite" museums in which "study collections, research, and publications would be discouraged." Both documents thus agree about the possibility of an organizational divorce between research and the public functions of a museum, and about the reduced need for direct curatorial involvement in the administration of the exhibition program, which was once the unchallenged domain of the scholarly curator. The New York State report would make some museums the satellites of others. The Canadian report merely goes a short step further, proposing that the museum become a satellite of another kind of establishment capable of providing the same services that the stronger museums would offer their satellite museums in New York.

Whatever the ultimate state of affairs will be, we have before us today the problems of how to incorporate the exhibition designers in our museum profession, and how to establish suitable criteria for the accreditation of professionals who, in many instances, have already risen higher than the curatorial level in the hierarchy of museum organization, and will continue to do so in the future. Good designers may, in fact, receive their first appointment to museum service above curatorial grade, and this is also a condition that is likely to become more rather than less frequent as time goes by.

The enigma of how to deal with designers as senior officers of interpretation has further complications and difficulties ahead. Even the largest museum does not have a sufficiently diversified demand to provide adequate stimulation for continued maximum growth of creative design imagination. The demands are also too unevenly distributed for the most economic use of staff time. For these reasons there is already a growing tendency to engage the services of independent firms or individuals for the design of museum exhibits, often with the costs entered under capital outlay, instead of operating expenses. It is also significant that the most

successful staff organization for exhibition design functions as a semi-autonomous unit serving a number of separate museums operating under a single overall authority.

As the development towards contract work in exhibition design continues, it might, at first glance, seem to simplify the problems of trying to establish a unified concept of a museum profession. The diversity of tasks performed by the regular staff would seem to be reduced. The design requirements must be administered by the museum itself, but do not need to be met from within. A shift of responsibilities is bound to result, with the burden of an increased role in the execution of the exhibition program falling upon the shoulders of the museum's administrative officers, while curatorial accountability for the quality of display is eased. These are all factors that must be taken into account if we are going to deal intelligently with questions of training and certification for museum careers.

The status of the exhibition designers has been considered at such length mainly for two reasons. It is the situation and prospects of these relative newcomers in the traditional museum organization that best illustrate the extreme difficulties of attempting to insist on the recognition of a single museum profession on the horizontal pattern of customary professional associations. Secondly, the role of the designer is at the crux of the question of who should wear the mantle of chief interpreter to the public, or, in other words, chief executor of the museum's primary function under either definition mentioned in the preceding. And there is still more to be learned from the present lot and future destiny of design.

It seems probable that the movement towards contract design will be led by the new and medium-sized museums, while the largest institutions, with an already acquired pride and vested interest in staff design will hold back, and the smallest establishments will have to carry on as before, without much benefit of design as a separate form of professional art. The introduction of professional exhibition design, whether obtained from internal or external sources, adds a final touch to the differences that ever more firmly and unfortunately separate curatorial careers in small museums from those that await in institutions of larger size or of university affiliation. In one class of establishments the curators function primarily as producers of visual education; in the other, primarily as keepers of collections and information. The differences are in many ways reminiscent of the differences between teachers and professors. Can they all be forced into the mold of a single "museum profession," or is it not, perhaps, better to talk about a federation of professions?

Our anticipation of the increasing use of contract design, administered, but not originated by the museum also calls our attention to the growing complexity and intellectual demands of museum administration. It would be foolish to close our eyes to the possibility that museum administration

may be about to emerge as yet another separate profession among the many now serving museum needs. For those who like comparisons it may be pointed out that hospital administration is recognized as a profession of its own, with special graduate schools or graduate departments available for the education of its members. And this brings us to the question of where the directors would take their place in a unified museum profession.

To begin with, let us be absolutely clear about the fact that if anybody is thinking in terms of unionization, it would be entirely improper and perhaps even illegal for directors and curators to be members of the same union. Yet some of the words heard in the discussion sound very familiar to one who has enjoyed many years of stimulating debate with employee unions. It is also of interest to note that most of the arguments for recognition of a curatorial or museological profession are voiced by directors.

Up to the present time I believe it is correct to say that a vast majority of museum directors have been recruited from curatorial ranks, with a small minority drawn from careers in exhibition and from other sources. Without seeking undue powers or consciously uniting to exert influence, the curatorial directors have, by the sheer preponderance of their numbers and their prestige, become the controlling forces of existing associations, and the principal molders of opinion among museologists. The curatorial route to directorial eminence has, accordingly, been widely accepted as the norm for our thinking about museum careers, and when deviations occur we like to regard them as the exceptions that prove the rule. This can be a very perilous form of self-delusion, particularly if it leads to the assumption that directors and curators necessarily have a unity of interests in all matters relating to conditions of service and of advancement.

Common usage in the selection of curators, preparators, and other museum workers has been quietly improving at an encouraging rate without restrictive formal codification of procedures, requirements, and privileges, or professional dictation of terms of recognition. It is primarily the provenance of directors which seems headed for future uncertainty, rather than progressive clarification by the accrual of a stable tradition. If designers, preparators, and administrators must be accorded an increased role in the museum's principal public function—which is education—does it not follow that the small minority of directors now recruited from such lines of museum work may soon become a substantial majority? And, in the not improbable event that museum administration should evolve into a separate and distinct professional career for some, would not this be the career most likely to lead to museum directorships? If these things should come about they would drastically change the system of prestige values in directorial circles, as well as the balance of power in national associations. But it

seems quite doubtful that such an outcome would otherwise greatly affect the conditions of museum workers outside of the upper administrative echelons.

Every measure we try to introduce to restrict admission to our ranks, may reasonably force the institutions to adopt countermeasures for the preservation of their freedom of choice in areas where unhampered opportunity to select may be essential for the health and progress of a museum. The situation to which this reasoning would most obviously apply is the position of director.

It must be remembered that in visual communication innovation will always be of the essence, and standardization of performance a deadly danger to institutional, if not to individual survival. The effects upon audience response may appear more quickly before television screens than they do in exhibition halls, but they obey the same basic laws and principles. In the circumstances it would be very unwise for the museums to surrender their right to seek new blood in top administration, wherever they can find it, even if they have to look entirely outside of the established body of museum workers,—among those experienced in education, visual communication, institutional management, and other applicable fields of endeavor. Many museums already use such latitudes in their search for a director, and their number seems to be increasing. Could this be the danger that is at the bottom of the agitation for "protection from the competition of the unqualified"? What are the harmful realities of such competition if and as it now exists?

Surely no director would appoint a taxidermist who did not know how to stuff a crow, an ichthyologist who could not tell a cod from a haddock, or an historian who had forgotten who delivered the Gettysburg address. A traditional union of exhibit preparators might be expected to have protested the recent introduction of exhibit designers as members of a separate profession within the family of museum workers. But this was an innovation brought about by administrative action, and I refuse to believe that a movement spearheaded by directors can ever include among its aims a limitation upon directorial license to act. And so we revert to a growing suspicion that we are all being invited to join the army in order to protect the *status quo* of the general staff.

The best way to promote the welfare and progress of museums, and of all who work for them, is not by attempting to homogenize our careers and force us all into the mold of a single profession. In that direction lies stagnation. Our common interests do not spring from our highly diversified tasks and qualifications, but from the cause and the goals we work for. If we frankly recognize that many different professions, and sometimes conflicting professional interests, are represented among us, we should be able to achieve a far more effective and mutually beneficial solidarity

about overall purposes and individual needs, than we are ever likely to attain by trying to pretend that we are all fellow members of a single professional guild. The effectiveness of association around a purpose rather than an alliance of similar skills is amply demonstrated by the splendid record of The American Association of Museums over the last decade.

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CIVILIZATION and ENVIRONMENT

A PROGRAM FOR MUSEUMS

Reprinted from CMA Bulletin, Vol. 14, No. 4.
Publ. Canadian Museums Assoc. Fall 1963.

THE INDIGENOUS MUSEUM

Text reprinted from Heart of the Mountain, Vol. I, Nos. 3-4
Autumn 1963. Publ. Mus. Cornwall Countryside.
Cornwall on Hudson, N.Y.

Also in Museologist, No. 89. Publ. North Eastern Conf. Mus.
AAM. Rochester, N.Y. December 1963.

CIVILIZATION AND ENVIRONMENT
A Program for Museums.

by A. E. Parr, Senior Scientist,
The American Museum of Natural History.

Talk given at C.M.A. Annual Meeting, Victoria, May 22, 1963

When I see what our accomplishments have brought us wherever we may make our homes, I often wonder why we always look upon centennials as times for celebration, and not as sad occasions. But since a wake may be as gay as a carnival, the question may well be said to be purely academic. And the attainment of a centenary is certainly an occasion for looking back upon our history in order to look forward more wisely to our future. But what was history, and where can the reflections of its image still be seen by those who look for them? Pageants may simulate the superficial complexion of fleeting moments of the past, but do not show the footprints left upon the country and the nation by the march of time.

There are many ways to help us sense what is no longer here. There is the magic of words and pictures to stimulate our inner vision. There are the historic houses that have survived the fate of generations to make us feel that we are walking with our ancestors again. There are the artifacts in our collections to show the ingenuity with which man evolved the means to rise above his natural status in the environment, and to satisfy the craving for beauty of his own creation that is one of the most distinctive characteristics of his species. And there are the reconstructions in life size or miniature of the conditions and circumstances of life through the ages, born of the scholarship and artistry of our museums. But again we must ask which museums and which history are we talking about?

History has many facets that we commonly treat as a bewildering diversity of separate subjects. But, in the aggregate of all its aspects, history is clearly nothing more, and nothing less than the chronicle of human ecology.

Our species is distinguished from all others by the combination of memory and symbolic language that uniquely gives rise to tradition as an evolutionary factor. Every generation adds to, and changes the accumulation of knowledge and habits it passes on to its descendants. From the time of its first emergence tradition therefore evolves at a vastly more rapid pace than that which characterizes the evolution of our bodies. In other species the life of one generation is not notably different from that of another. Changes in their pattern of existence must await the slow processes of organic evolution or geophysical transformations of the environment. In the study of their ecology time enters only as a measure of the seasons and of the life-span of the individual. Irreversible processes grounded in the nature of the species and not of the environment can be disregarded. Only geological, not historical time will tell of their effects.

Through the role that tradition has attained in our ecology, and through our ability and sometimes hysterical urge to alter the customs and the means by which we live, we, and we alone, have been freed from the need of awaiting a modification of our bodies before changing our mode of existence. The irrevocable passage of time and generations, which could be disregarded in the study of other species, therefore assumes paramount importance in any consideration of human ecology. It is this basic difference in the laws governing the ways of man and beast which nearly always leads us to forget that history is only natural history, after all.

To achieve a sound division of labor and effective integration of performance in the broad field of inquiry which we call history, we must therefore abandon the traditional notion that this is the private realm of a particular discipline and suitably labelled type of institution. This is not to say that each establishment should undertake to develop and present its own peculiar version of history as seen from a unique point of view, but that each has a part to play, and that a truly proper image of history can only be created by the combined efforts of

all. In the tasks of forming this image and conveying it to the public, the potential contributions of the natural history museums may be more important than those of any other instrument of general education outside of classroom walls.

In the broadest sense it would be correct to say that anything man does from falling asleep to sending a satellite into orbit is an aspect of his ecology. But such sweeping definitions destroy all the usefullness of a word or a concept. A more serviceable intellectual tool is forged by contrasting the ecological roots of events in a narrower sense, with what we may call their political causes, for lack of a better name. As a mental experiment it may be instructive to try to extend the ecological interpretation of history as far as any stretch of imagination and logic, unhampered by facts, will permit.

By far the most common causes of human migrations are purely ecological. In the simplest cases men are driven by an absolute need for more food than their old home can provide. On a slightly more sophisticated level they may seek an easier way to fulfil their ecological needs without actually being under the threat of physical starvation. The ecological conditions that give rise to the migrations may be precipitated by developments within the population, such as increasing numbers, changing cultural patterns or a growing awareness of distant opportunities. Or the situation may be, and probably more often has been caused by adverse environmental changes of climate or in the abundance of natural resources, or both. But, however far we try to stretch the ecological point of view, there are human mass movements that can not be described or explained in its terms. The great transatlantic migrations that resulted from the Irish potato famine were clearly a matter of ecology, even in the narrower sense which we are now trying to define. On the other hand, there is nothing to be gained by trying to treat the arrival of the Puritans in the New World as anything but an historical event of politico-ideological rather than ecological origin.

The distinction between what we have chosen to call the political and the ecological causes of history may emerge even more clearly if we pursue the idea of history as ecology still farther into the realm of pure speculation. Mass migrations often involve wars of invasion, and so we may also have hostilities of primarily ecological origins as opposed to conflicts of dynastic ambitions or ideological zeal, both of which we may lump under the term of political warfare. For the sake of the argument let us postulate that people who live under submarginal conditions, either through environmental circumstances or through under-development of their own skills, commonly tend towards aggressive behavior in order to supplement their inadequate means of existence by the bounties of war. This ecological warfare is not waged against a hated enemy, as in the case of political hostilities, but is rather directed quite simply towards the handiest source of the desired loot. And when the booty is sufficient to contribute significantly to the welfare of his people the warrior will be held in high esteem among his fellow men. The annual raids of the vikings would seem clear examples of ecological predation, and so are the familiar cases of desert tribes and pastoral people preying upon agricultural and mercantile societies. On the other hand it is equally clear that the crusades and the wars of Xerxes, Alexander or Napoleon have little to do with ecology, and can only be understood as historical events of political origin in the minds rather than the bio-economic needs of the contestants. It is interesting to remember that as trade developed and charter prices became ecologically more rewarding than the prizes of war, the long ships of the vikings became the tankers and tramp freighters with which a small nation peacefully serves the entire world today.

It may be very hard to tell how much is due to ecology and how much to the superimposition of the mental factors of politics in any particular episode or series of events. The purpose of this rather lengthy digression into the realm of pure speculation has been twofold. It has been intended to convey a sense of the distinction between what we have called the

ecological and the political factors of history, even though exact definitions are impossible both in fact and in theory. Any naturalist knows that it may be quite easy to tell one tree or one bird from another at a considerable distance even though he may find it extremely difficult to define how he makes the distinction. The second purpose has been to demonstrate that ecological information and the ecological point of view far from being marginal and insignificant, is central and essential to the study of human history and of the history of nations everywhere.

Here in the Western Hemisphere the ecological aspects of our history are even more dominant than elsewhere, because we have had no Alexanders or Napoleons, no Thirty Year or Hundred Year wars to distort the chronicles of our past and disrupt the natural course of our progress. The essentials of our history are contained in the story of the relationship between our people and the land in which we live. It is a fascinating story, and our part of the world is the only region in which the records of what has transpired can still be studied in minute and reliable detail, because it all happened so fast and so recently. When western man first came to our shores the territories that were to become the northern United States and Canada were so thinly populated that their natural resources were virtually untapped and mostly unknown. The people who were here before had sustained themselves from the renewable yield of living nature, and the region could in all essentials be regarded as virgin country unaltered by the acts of man. What has happened since is a story about nature as much as it is a chronicle of man. Nature gave the new nations their start, determined the form and direction of their growth, and often provided the true reason for actions that superficially might seem to fall entirely within the realm of political history. Populations do not spread like a rug rolling out in even thickness over hill and dale. They follow the paths of least resistance or of greatest temptation. So nature guided the settlers down through the rich Shenandoah Valley before they spilled over into the midwestern plains, and nature also provided

the gold that brought on a rush to the West by the shortest routes across all obstacles. It has been suggested that without the beaver and the buffalo our west coast states might conceivably now be members of the U.S.S.R. and not of the U.S.A. The westward movement from the Eastern settlements was spearheaded by trappers in search of beaver pelts, who were able to cross the high prairies by living off the buffalo herds. It has also been suggested that the abolition of slavery might have come about more peacefully if it were not for soil depletion. The North did not demand abolition within the southern states, but merely that slavery be prohibited in all new territory added to the expanding Union. But southern crops and methods of cultivation tended to produce soil exhaustion in about ten years, so that an open door for the westward drift of the southern social and economic system was essential for its survival. These suggestions may exaggerate the importance of the points they make, but they also contain kernels of truth that have undoubtedly been factors of real consequence in our history.

When we shift our attention from the national to the local scene, the historical role of the natural environment and of its responses to human treatment or mistreatment becomes even more important. Settlements formed because of the resources nature offered the settlers, whether the bounty was tendered in primary assets such as minerals, timber, or fertile soils, or in secondary benefits such as advantageous locations for natural trade routes or defensive strongholds. And man, in his turn, changed the environment by what he removed or converted of its tender.

The Warburg Memorial Hall in the American Museum of Natural History contains a modest exhibit in five panels showing the history of man and nature in Westchester County near New York City. It starts with Indians practicing their primitive agriculture by the use of woman power in the primeval forest. Then come the first white settlers with their ox-power cutting timber and clearing land for cultivation by plow. This reached a

culmination with virtually all the land, good and bad, hillside and valley bottom, cleared and under cultivation by horse-power. There follows a decline with the opening up of greener fields in the West. Abandoned farms dot the hillsides and shrubby secondary growth encroaches upon the fields. And finally we come to the present day situation with the valley bottoms intensely cultivated by machine-power and the hillsides kept as well tended woodlots and grazing land. It was hoped that this little sequence of exhibits, adding its intelligence to the scattered messages one could find elsewhere, might help usher in a far broader and deeper concern about the history of man and nature in our natural history museums.

It is not too much to say that it is quite impossible to get any real understanding of our countries and our nations, without a proper knowledge of the history of both the people and the land. This is not two separate histories, but one. And it can be fully told by museum methods only when the natural history museums also do their share, and when the other museums fully recognize the need to have the contribution of the natural history museums heard in the telling of the story.

How have the natural history museums responded to this challenge and opportunity to relate their knowledge to the affairs of man? They have generally reacted by diligently shying away from the task as if it were an evil temptation. We continue to go to great lengths to seek out the situations in which the influence of man has not yet had any effects that are sufficiently obvious to force themselves upon the attention of the casual observer. We treat man's role in nature as if it had only a nuisance value, and were a topic better left unmentioned, except when we join the chorus of protests against his being where we do not feel he ought to be, and doing what he should not do. It is no exaggeration to claim that much more than ninety-five percent of all natural history exhibits attempt to deal with virgin nature, or to hide that they don't when they can't, and that much less than five percent recognize and illustrate the interaction of man and nature

upon each other.

I do not want to minimize the value of showing the appearance of nature as it once was, and still might have been, and of using this image to help gain protection for some of the areas that have not yet lost their wilderness character. Nevertheless, it is high time to recognize that this is only a small and incidental part of the museum's overriding obligation to help man gain a better understanding of the world in which he lives. But this is an obligation upon all museums, not only upon those having to do with natural history. Let us therefore also take a look at the role that the other members of the museum's family ought to play in the common task of public education.

A historical museum can be many things. It can be a tomb for the ritualistic preservation of articles hallowed by their association with persons and events, but without independent interest as physical objects. It can be an establishment primarily dedicated to the display of the records, proclamations, symbols and instruments of government. Sometimes it is almost entirely devoted to the military apparatus and to souvenirs of war. In other cases a museum may focus its attention chiefly upon the historical evolution of the tools and conveniences of living.

But more important to our story than means with which man has struggled for his existence through the ages, and the ways in which he has used his implements and facilities, is the chronicle of the results he achieved by what he did, the changes he wrought upon his land and his community, his country and his nation. Unfortunately, this aspect of history is the one least likely to be given the center of attention in historical museums.

One reason for the museum neglect of a subject of such paramount importance in helping man to understand himself and his society undoubtedly lies in the fact that this is not a collector's topic. Collections are essential for showing how things were done with what devices. But what was accomplished by man's

labor in the larger sense of the community's growth and development can never become a museum specimen, any more than you can expect to find a skull of Darwin as a young man among the cherished treasures of a department of anatomy. When we want to trace the evolution of the inner structure and outer circumstances of a society, the museum's ability to create a semblance of the past becomes far more important than any ability to collect its substance. But museums are naturally staffed by collectors prone to follow our own predilections if we are not on constant guard against ourselves.

These remarks should not be taken as a suggestion that the other objects and concepts that have long had the logical home in the historical museums should be shelved and disregarded. The argument is merely for a change in emphasis, and it must be clearly understood that the discussion only concerns the museum's educational services to the general public, not its functions in research, which might well have a quite different organic structure. However, I do firmly believe that what grandfather's generation did, what the community looked like that they did it in, and how they changed it, does have a much more important message for the people of today, than does any information that the sight of his tools might communicate, important as this may also be. I am, further, convinced that there is a far greater latent interest in an exposition of the consequences of past endeavors, which only slowly fade away, than there is in a display of the instruments used, which scarcely concern us except when they are put before our eyes.

The presentation of history as the evolution of the community with all its physical characteristics, institutions and enterprises is particularly well adapted to the situation of local rather than national museums. When trying to deal with the subject on a country-wide scale one is unavoidably forced to rely more heavily upon the graphic rather than the plastic arts of display. The miniature diorama's exciting reconstruction of a local situation must give way to colored maps and statistical charts

when the theme becomes too broad to be dealt with as the contents of a single field of vision unless it belong to the man in the moon. The local museum can also take advantage of visitor involvement in the situations portrayed, and of visitor familiarity with the general scene to an extent that would be quite impermissible in a national institution, which can not build upon daily experience with the substance of the presentation but only upon daily exposure to its treatment in the mass media.

Obviously the kind of message I am here urging upon the history museums is one which can best be told under the same roof with a museum of natural history. It was not always my idea, but the more I have thought about it the more I have become convinced that the closer the ties between museums or departments of history and natural history the better it will be for both, and for their service to public education.

Whatever a historical museum may choose to define as its future mission I hope it will be more alert to the dangers of becoming simply a community attic than many of these establishments would seem to have been in the past. It must always be remembered that willingness to give is often evidence of unwillingness to keep, and also that nostalgic exhibition does not necessarily constitute historical exposition.

Art also has a historic aspect, and history an artistic one. But, at this point, it will be necessary to be quite brief about the proper role for the art museums in the drama of civilization and environment to be presented by all museums acting together.

There would seem to be two different philosophies about the purposes of an art museum. It may, as Oscar Urrutia of Mexico has expressed it to me, serve as a communal place of devotion to beauty, without educational functions in the ordinary, cognitive sense. I have no quarrel with any institution which explicitly lives according to this concept of its functions. On the contrary, I have the greatest apprecia-

tion for any opportunity to submerge my senses in beauty without pedagogic or other utilitarian overtones. But the majority of art museums, which regard themselves as educational rather than devotional institutions might perhaps very well be a little more clear about exactly what it is that they see as their educational mission. But this must be left to others and to other occasions. Here we are only concerned with the contribution of art museums to a community's ability to understand itself.

The masterpiece concept has tended to turn the study of art into a holier-than-thou subject suspended on sky hooks above the workaday labors, joys and sorrows of the community. The concomitant intimidation of lay taste, even with some refinement of discrimination, may well be questioned as a sociological asset. Is life more enriched by timid sophistication or by simplicity unfraid? However this may be, and whatever the goal to which the art museum wishes to lead, it should start from the common experience of the community in which it tries to exercise its leadership. Awareness of impact upon familiar scenes and memories awakens curiosity about the most remote origins of the influences that have made their presence felt in local history. And there has scarcely ever been a significant movement in world affairs in the arts, or in any other field of creative enterprise, that has not left some sign of its passage everywhere. An art museum that follows an educational policy of moving from local consequences to cosmic causes and from regional beginnings to universal ends, whenever such routes are possible, would obviously have a very important voice in telling the community about itself, without detracting in the least from the value of all else that it has to relate about things more distant in time, in space and in the mind, but rather adding to its fascination.

We may feel that the reflections of art in the life of a community that counts its age by decades, only, or at most, as a century or two, will not get us very far towards an introduction to art of all ages. But, to begin with, the years of our presence on this continent

include the period when art became hard to understand and therefore easy to suspect, and much more in need of introduction than ever before

When our century began, even wallpaper had to be representational in one way or another. To relate Kandinsky or Picasso to wallpaper and fabrics, and Mondrian to the newest residence in town may seem a violation of the purity of the artistic spirit. Actually it would only be a tribute to art as a powerful force in everyday existence, - a way of telling our visitors that the things we place before them are well worth looking at and trying to understand, because they have already affected all of us far more than many have been aware of, and may continue to do so for a long time to come.

Secondly, the relationship between art and daily life is not necessarily a matter of coexistence in time. While our countries did not go through the first age of Tutankhamen they fully shared the experience of his second era. Nefertiti undoubtedly influenced the esthetics and the decorative arts of the Americas in the Twentieth Century far more than she affected the concepts of Egypt in her own days on earth. There is always more than one way of connecting the universal past with the local present for a better understanding of both.

To the extent that we please, we shall be awarded and supported by the people so long as they feel they can afford the luxury of our pleasures. But only to the extent that we help man to understand himself, his circumstances, his functions, and his world, shall we be able to become an essential element in the life of the community, as indispensable as its schools, and equally secure in the value of our services in good times and in bad. I believe this is a fundamental law of existence for all museums, which too many of us have tried to disregard too often at the expense of all, and not only of the offenders.

Each museum has its own unique functions to perform, which gives it a special value according to its kind and its place. But all museums also have a common mission to fulfill, and will gain their greatest strength from their joint efforts to achieve it.

A. E. Parr

THE INDIGENOUS MUSEUM

Reprinted From

HEART OF THE MOUNTAIN

DEDICATION COMMEMORATIVE ISSUE
Volume 1 Numbers 3-4 Autumn 1963

A Quarterly Journal of Natural History, History and Art
indigenous to the Mid-Hudson Valley,
published by

The Museum of the Cornwall Countryside
Cornwall-on-Hudson
New York

Volume 1 Numbers 3-4 Autumn 1963

The Indigenous Museum

An address delivered at the Museum of the Cornwall Countryside during the 17th annual meeting of the Northeast Conference, American Association of Museums, October 7 - 12, 1963.

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THE AMERICAN MUSEUM OF NATURAL HISTORY

As I worried over the topic assigned to me, I became increasingly concerned about the exact meaning of the words that supposedly spell out the subject of my remarks. Perhaps an attempt to establish some simple, but precise definitions may be more useful than any other observations I can offer under the title of this article. In any event, intelligent discourse requires a proper identification of its theme. A small excursion into the semantics of museology therefore seems a necessary preamble to any thoughts I may be able to put forward.

The word "indigenous" can cover many sins and many virtues. When we use it to describe a museum we do so in the hope of thereby achieving a clearer definition of what we are talking about, but I am not at all certain that we accomplish our purpose. Obvious ambiguity may be less confusing than obscure perspicuity.

A museum may be classified in many different ways according to what features or functions we choose as the basis for our system of classification. There are principally four large areas in which we look for the distinctions we use in our daily talk about museums. We may define them by the sources of their support or by the contents of their exhibits and collections. We may group them according to the nature and intensity of their interaction with the public. Or we way think of them in terms of the human spheres in which they seek their prestige and the satisfactions of their ambitions, international or suburban, the world of the professional expert or of the enlightened lay public. It may be easiest to start with an examination of some of the words that have had the longest usage in museum terminology. Among these is the adjective "local".

A museum may be described as "local" simply to contrast it with nationally supported institutions. Or the expression may have reference to the size of the community in which the museum has its home, setting it apart from the metropolitan establishments of the large cities. And sometimes the adjective seems only a diplomatic way of hinting at the temporarily small size of a museum that has no intention of remaining "local" any longer than it has to. In all of these contexts the word "local" is defined with reference to the museum's external situation or dimensions. But "local" can also refer to the origin of a museum's collection and exhibits, and could in this sense well be used to describe many museums that are actually both large, national in character, and metropolitan in location. Within the limits of this connotation "local museum" can also be taken to be synonymous with "indigenous museum", "regional museum" and "heimatmuseum", but, rather surprisingly, perhaps not with "neighborhood museum" or "community museum". These latter designations are frequently used to indicate that the museum's purpose is primarily to serve the people of its own proximity in a more intimate relationship than a more distant institution may be able to maintain, although the contents of the museum's exhibits may come from any part of the world.

The word local can also be used in yet another manner and meaning in a discussion of museums. We often speak about museums of international importance as opposed to those that are only of local interest. And this comparison involves a paradox that may be worth a few remarks.

In the sciences one could almost say that the exhibits, as distinct from the research collections of a museum are of international interest only in so far as they are local in their contents. This is also often, and to a considerable extent, true of museums of history, folk art, and decorative arts, but scarcely applies in the fine arts.

The world may flock to the Louvre for a glimpse of a Mona Lisa or a Winged Victory nowhere else to be seen, but the furred facsimiles of African lions shown in London or Paris, Copenhagen or New York must inevitably duplicate each other in appearance and appeal, as effigies of the same archetypes. Under the laws of nature, biological exhibits are prevented from becoming distinctive in the essentials of their substance and their messages, and can differ only by the skills of preparation and of display shown in their presentation. As the museums become more sophisticated in the arts of exposition, even the differences in the incidental details of their spectacles become too subtle to weigh much in a comparison. Only when they deal with objects and features of local nature, not likely to be shown in other places, will the exhibits attain a degree of uniqueness of more than local interest.

Similar reasoning also applies to manifestations of international styles in the decorative arts, and to the internationally available types of anonymous folk art. Although each item may be unique, there is sufficient equivalence, and identifaction with a common prototype, to provide for a considerable degree of interchangeability. It is primarily by its supremacy in the exposition of a local tradition with its reflec-

tions of, and influences upon the wider evolution of the arts and crafts that the museum of a small community is apt to become an institution of national or international consequence. Only in the purest of the pure arts do specialized international collections offer a reasonably promising avenue to international prominence for museums of moderate size and means, on account of the absolute rather than relative uniqueness of the treasures involved, and because of their limited availability. One could perhaps say that in the pure arts, value and prestige are primarily attributes of the artist, while in the popular and decorative arts they relate primarily to the object and the style it represents.

If these digressions and semantic explorations have been of any help at all, they will have shown us that the subject of our discussion is not sufficiently defined by the word indigenous. What we are concerned with is a museum of indigenous contents dedicated to intimate community service. We have also found a logical basis for adopting rather different policies of geographic emphasis in the acquisition program of a local art gallery and of a local museum of popular arts, history and science.

The purposes of the indigenous neighborhood museum have been summarily, but well described by Dr. Bettison Shapiro when he states that "such a museum preserves and emphasizes the most beautiful and worthwhile aspects of the surrounding region, and . . . . presents an opportunity for increasing awareness of these values to residents of the area and to visitors", and, in contrast to spectator institutions, it "involves the active and personal participation of a large segment of the population which it serves." [1)]

The benefits a museum can confer upon society and upon the individual are many and diverse, and so are the means by which it bestows its blessings upon the beneficiaries. The purposes of the Smithsonian have been defined as the increase and diffusion of knowledge among men. This is an admirable dictum, which we can acclaim as a motto for all museum effort. The splendid maxim does not, however, help our discussion very much, since it does not offer an antithesis of mutually exclusive, alternative functions, but rather proclaims the means and ends of the entire educational process, without stating its ultimate purpose which lies beyond knowledge in the achievement of greater happiness among men.

The right kind of knowledge is as essential to our happiness as the right kind of food is to our health. But when knowledge and happiness are sometimes talked about as though they were equal and interchangeable goals of education, it becomes necessary to register a reservation. Knowledge breeds appetites that can easily turn to hunger when barred from the means of their satisfaction. The enlightenment we tender must therefore be evaluated in relation to the needs of human happiness. There are those who will object that the attribution of values and priorities is a violation of the essential character of true knowledge. But, so long as no man is omniscient, all knowledge is selective. Intelligent choice or random sampling are therefore the only real alternatives. Wise guidance in the process of selection is

perhaps the most important duty of all who teach, whether we communicate through the medium of words or of museum exhibits.

Happiness is a word of many meanings, with a mixture of many ingredients in each of its connotations. It is in the extremely broad sense of the Declaration of Independence that we here speak of happiness and of our obligation to help in its pursuit. Some of the components of a happy life are spontaneous results of immediate personal experience. Others might be described as delayed rewards for wise decisions and diligent application. As a sensitive organism every human being is in a constant state of individual interaction with his environment. The joys or vexations of the flow of events register quickly, if not instantly. As consumers and workers we act jointly with other members of society to provide for our own consumption by helping to meet the needs of all. The pleasures gained are not always so promptly felt, nor are the pleasures lost so speedily realized. As constituents of a democratic body politic we are the ultimate victims or beneficiaries of all decisions in which we participate directly, or indirectly, through the powers of our voices and our votes. The blessings or calamities we help to bring upon ourselves may be long delayed in extending their effects into our personal situation and welfare. It must be the duty of all educational institutions to offer assistance on each of the three levels on which man must conduct his pursuit of a happier existence, — in the privacy of his life as an individual, in his actions as a consumer and his performance as a worker, and in his conduct as a citizen.

In the enrichment of our personal lives the intimate indigenous museum has a great mission to fulfill beyond cavil or distrust that any negative effects might result from successful performance. Our experiences of the environment become more enjoyable by being understood, and knowledge does away with needless fears rooted in ignorance. It is a misunderstanding to believe that it is our eyes that see. They only make sight possible. When a person born blind is cured of his blindness, and opens his eyes to see for the first time the experience is not one of rapture, but of painful and meaningless shock. We must learn to look through our eyes, and most of us are fortunate enough to start our apprenticeship at birth, which makes it a comfortable process, soon forgotten to the point of believing it never took place.

One of the most important functions of any museum is therefore in a very real sense simply to teach people to see, beyond the skills of vision that the limited means of the home can impart, or surrogate symbols of language can instill. On a walk in the woods a person with knowledge about nature will see hundreds of sights that entirely escape the perception of another, not so informed. And even the scenes that no one can miss give infinitely more pleasure to those that understand the action. Familiarity with insect lore will make a wasp's nest fascinating rather than fearsome to watch.

In this connection it is important to remember that, while the knowledge we give of distant regions, not likely to be reached by our visitors, may be tremendously important to them in their roles as citi-

zens in a democracy, the spontaneous pleasure they get from what we show them is essentially limited to the occasion of their museum visit. But, when we help them penetrate the secrets of their own home environment, the satisfactions we afford are endlessly repeated in the daily lives of our guests. This is a very strong point in the argument for the indigenous museum.

Knowledge does not only gratify by its possession. There can also be delight in its pursuit. Most people of my generation may remember their studies as a dreary occupation. We know today that it need not be so. Vital to the enjoyment of learning is the creation of a very personal relationship between observer and observed, preferably with a physical interaction between the two that may serve as a feed-back mechanism stimulating to further exertion by the response to previous effort.

In the large metropolitan museums, with their millions of visitors annually, the channels of communication are, of regretable necessity, almost confined to our range of visual perception with a small assist from our sense of hearing, and a barrier of glass or distance must needs separate spectacle from spectator. Simple arithmetic gives the intimate indigenous museum ever so much better opportunity to provide visitor participation for all who come. In fact, there is at least one museum, aimed at the younger generation, where the "passive" viewer is practically unknown. And such establishments should be among the first to benefit as the students of education learn more about the infinite varieties and possibilities of responsive environments, in the broader sense in which the teaching machines only represent one kind of mediating link between the individual and his surroundings.

It would be very easy to reel off a long list of services an indigenous museum might theoretically offer for the improvement of vocational skills. But the wealth of possibilities does in itself constitute the most serious warning against the dangers of entering upon the cultivation of our abilities as working members of society. In a complex civilization this is not a task that can be done with fairness to all in a small museum, even if it is located in a small community. And if the institution becomes large enough, it loses the responsiveness to the individual that is so essential for the best teaching of personal skills. By this reasoning we are led to the conclusion that it may not be desirable to undertake vocational training by museum methods in a centralized establishment. And the indigenous museum, however small in its beginning, does represent a centralized effort of the community, unless clearly restricted from the start to a very special and limited range, such, for instance, as glass and glassmaking. I would offer only one general exception to this caution against entering the field of preparation to make a living, and that has to do with the occupations in which man extracts the basic essentials of life and civilization directly from the natural resources of his environment.

Exhibits dealing with agriculture, fisheries, forestry, mining and similar activities should be encouraged even in the most metropolitan of natural history and science museums. In a less urban community the treatment of these matters in the indigenous museum seems even

more logical. State and federal money is regularly spent on ephemeral educational exhibits dealing with such subjects at county fairs and on other occasions. It might well be argued that the money could, perhaps, be better spent, at least in part, by helping the indigenous museums to take over, on a more permanent basis, some of the educational functions of the official sideshows at the fairs.

When we consider our roles as consumers rather than producers the problems of education are very much simpler, in the sense that they do not involve such a multitude of different and almost separate topics. The butcher, the baker, the candlestick maker may have little in common in the traits of their occupations, but they all eat, dress, sleep and travel in very similar ways, by means of almost identical devices, drawing upon the same substances and materials. As producers we scatter our interests in too many separate directions for unified treatment of their diversity within a single establishment. As consumers we all share a common concern about the natural and economic foundations for our welfare. It is therefore desirable as well as feasible for even a small musuem to give some attention to the natural resources of the nation and to its productive, distributive and economic system. In our industrial age local self-sufficiency is only a historical memory, and the lesson of how a nation functions and sustains itself can no longer be taught by regional example, alone. To accomplish the task we must try to present the general pattern of affairs throughout the country. But, are we still speaking of proper goals for an indigenous museum?

By the definitions suggested at the beginning, and according to the usage of the term indigenous museum, that I have observed among others, it would seem that our thoughts have already passed beyond the proper bounds of such an establishment, into the domain of the geographically unrestricted, general community museum. It is at this point we begin to encounter the negative aspects of the indigenous museum concept.

The knowledge we need as citizens of a democracy, in order to act intelligently in its domestic affairs, is to a considerable extent made up of the kind of information that would also be of the greatest interest to us in our role of consumers. To be sure, the citizen also needs enlightenment over a wider range of subjects, but this merely means that an institution restrained from dealing adequately with the topics that appeal to the curiosity of the intelligent consumer, would be even less capable of contributing to his development as a citizen. And geographic restrictions that make a large part of the internal features of our own country inadmissible, must, of course, leave out the rest of the world altogether, thereby precluding any contribution towards specific preparation for intelligent citizen action on our foreign problems.

With the wonderful gifts an indigenous museum may give us for the enrichment of our individual lives, it might seem as if I were meanly carping on some very minor sins of omission by museums often too small not to omit something, in any event. A couple of years ago I would have agreed with this point of view. But I have since

come to understand that omission may in itself be an act of commission.

After the end of the Second World War there has been an extremely vigorous growth of indigenous museums in many parts of Europe. There has also appeared among the younger people a Europeanism that often disturbs many of their elders, who speak of "rootlessness", when their inferiors in years talk of themselves as Europeans first, and as nationals only in second place. With millions of others I believe the "rootless" youngsters are pointing the way to the salvation of Europe in a union without barriers. I have no reason to say that most of those dedicated to the development of indigenous museums do not share this faith. But I have recollections of a discussion in which it was emphatically maintained by well recognized authority that perhaps the greatest mission of the indigenous museum was to combat the cosmopolitan rootlessness of the young and re-anchor them within the particular valley of their forefathers. There was no expression of anti-internationalism or anti-europeanism, perhaps there were not even any such sentiments. But much of what was said gave an uneasy feeling of a desperate attempt to turn back the clock till all were again resting snuggly within the sheltering walls of national boundaries.

Fortunately, we do not have the same problem on this continent, but we may still find a lesson for the future in the experience I have just related. In offering its services to the community the indigenous museum must so design its functions that the fruit of its efforts becomes an addition to the bounties of life, not an escape from its realities, and that the burden of its message will serve to widen our horizons and not to insulate us among the charms of our own little valley on earth. The advantages of the indigenous museum are also its handicap. The bonds it forges may strengthen or confine. The success of its mission lies not within the details of its performance, but in the overall balance of the knowledge and feelings it imparts. It is a delicate equilibrium to maintain, but the great potential benefits which are so strikingly demonstrated by the Museum of the Cornwall Countryside, are obviously well worth the challenge of the risks involved.

Habitat Group and Period Room[1]

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It is actually not quite certain whether the idea of the habitat group originated independently in the museums or was inspired by the rather amazing arrangements of the taxidermists' art that once were a fashionable decorative feature of homes and hotels, particularly among the "sporting." I have recently come upon another possible source of the habitat-group idea. In the early days of stereoscopic home entertainment, the camera was still slow and the birds as fast as ever. In order to manufacture stereoscopic pictures showing birds and beasts in their natural state, the photographic firms evidently had to enlist the aid of taxidermists. Some of the pictures indicate that the photographer must have taken to the trail happily armed with a camera over his shoulder and a brace of stuffed birds under his arms. The winged members of the party were then arranged to form a natural tableau in the great outdoors. Could this be the first man-made habitat groups? In other cases it is evident that the publishers of the stereoscopic views have gone to the trouble of creating entire indoor habitat groups, which apparently were relegated to limbo as soon as they had served their purpose as photographic models. Many of the pictures survive, but I have never been able to find any of their prototypes. The pictures I have seen have all lacked publishing date, which makes it difficult to be certain about the historical relationship, and any information on this point would be most welcome. But whatever the true genesis of the animal habitat group may be, it seems fairly certain that the habitat group became the progenitor of the period room.

Two kinds of curatorial motivations nourished the growth of the habitat group in the natural history museums. There was a growing anxiety

[1] Paper presented before the Winterthur Seminar on Museum Operation and Connoisseurship at The Henry Francis Du Pont Winterthur Museum, 1963.

to relieve the tedium of specimens in endless and ever-growing rows. The decorator's creations already mentioned may have struck a responsive chord in this sense of concern about monotony. In others, the urge toward the habitat group may have sprung primarily from a desire to tell more about the life of the species than its dead and stuffed remains alone could impart. To those mainly guided by pedagogic considerations, the stereoscopic slides would have meant more than the taxidermic ornaments. I believe that the same two types of motivations are still at play in our continued efforts to improve and to multiply the habitat groups on earth. I also believe that entirely analogous motivations are involved in the demand for period rooms. This might all seem like idle academic chatter, if it were not for the fact that our reason for having a habitat group or a period room ought to affect the kind of group or room we install. Our motivations should therefore not be left in our subconscious.

In order to make it possible for a static exhibit to tell much about the dynamic life of a species, the species itself must cooperate by concentrating its vital activities within a very small area of nature that can be successfully reproduced within the museum. This condition is most eminently fulfilled by the home builders of the world, from birds to beavers and to man. Nesting birds with parents, eggs, and young were the first, and remain the most common, objects of habitat display. The many interesting variations evolved by the habitat group need not concern us here. They have been fully discussed elsewhere.[2] But all truly natural habitat groups, even the most modest, have in common the drawback of a very high space demand per species shown. In order to be able to exhibit as many different kinds of animals as the public might legitimately expect to see, essentially two different courses of action are possible.

The museum may select for portrayal special situations in nature which bring together an unusual diversity of animals that would avoid one another's presence at all other times. An African water hole is a good example. Or the contents of the diorama may be distorted toward an unnaturally high census of species and specimens, far exceeding anything that could be found on the same number of square feet in the great outdoors, although every kind of life shown in the exhibit normally inhabits the kind of environment in which it is presented. This can be called the faunistic diorama in which every part is proper to its setting but the sum of all the parts is not.

The habitat groups and the faunistic diorama both serve the wish to tell something about the life and not merely about the bodies of the species. But when even the faunistic type of exposition proves inadequate

[2] Parr, A. E.: *The habitat group,* CURATOR, vol. II, no. 2, pp. 107–128, 1959. Also: *Dimensions, backgrounds, and uses of habitat groups,* CURATOR, vol. IV, no. 3, pp. 199–215, 1961.

to cover the variety of things that ought to be put on parade, a superficially very similar but actually almost purely ornamental device can be used with very pleasing results. This is the type of systematic exhibit which utilizes more or less abstract and conventionalized imitations of natural environmental features as the principal element of its decor, while actually being concerned only with the form and relationships of the species to one another and not to their surroundings. Such arrangements can be a very effective response to the fear of monotony. Although they achieve little else, we must not underestimate what they do contribute to the pleasures of a museum visit. Since we may not return to this particular subject, I want to mention in passing that systematic exhibits of the kind just described from the natural history museums may also have their charming counterparts in museums of history, ethnography, and decorative arts. For example, the Norsk Folkemuseum in Oslo wanted to show some of the rather fantastic underwear of an earlier period. It could not very well be introduced into the period rooms, and one did not want to show it nailed to the walls in shallow glass cabinets. So it was hung up on clotheslines to dry in a captivating, conventionalized tableau, with clothespins appropriate to the period.

Although the parallelism between the habitat group in all its guises and the period room in all its styles and mutations is a close and interesting one, there are also some fundamental differences in the concepts and functions of the two modes of exhibition. The pedagogic purpose of the habitat group is to give as much background information as possible about its inhabitant, who remains the principal character of the act in all circumstances. The group may show only a small fragment of the habitat but can never leave out its occupant.

The period room, on the other hand, primarily serves to gather otherwise separate, inanimate articles into a meaningful ensemble, illustrating a previous pattern of coexistence that relates the objects to one another. The period room will therefore much more often than not entirely omit the erstwhile tenant of the premises.

One reason for this highhanded treatment of the householder is undoubtedly a conscious or inarticulate feeling that it is much easier for the visitor to see himself in the master's place in a Tudor hall instead of a gopher hole. That this sound psychological assumption plays a tacit or explicit role in exhibition planning is confirmed by the fact that the more alien the abode is to the experience of the community in which it is shown, the more likely it is to contain a complement of occupants in effigy.

Although you may often do without him, the question of how to represent the human inmate of a period room, when you want to do so, is a fascinating one, often involving subtle nuances of meaning and intent.

Fig. 1. Guide in costume, Norsk Folkemuseum, Oslo.

When members of the household are introduced among the furnishings, it is primarily, and almost exclusively, for the purpose of relating the costumes, hairdos, and jewelry of the period to its general decor. It may well be said that neither is complete without the other.

One of the simplest ways of uniting raiments and appointments is by draping real robes on headless dressmaker's dummies and arranging them among the tables and chairs. When headwear is also to be shown, an abstract egg shape may be added. Because they do not attempt more than they can achieve, these arrangements are actually very much better than they sound. Even death is less deadly than a lively scene that does not live.

When garments are to be injected at all, the irreducible minimum presentation of attire is by means of pictures included in, or associated with, the label. In the Geffrye Museum in London this purely graphic treatment has been carried a step further by photographically enlarging contemporary illustrations to life size. The mounted photographs have then been cut out like cardboard soldiers, and left to stand on their own legs, one in each period room. This practice can be very informative and quite unobjectionable, but it is well to be warned that its merits can be judged only by direct inspection. In photographs of any kind the cutouts receive an offensive overemphasis because their lack of a third dimension, which subdues their role in reality, has become a universal feature of the entire scene. In black and white they suffer even more by the additional generalization of their lack of color.

The use of completely realistic human faces and figures as wearers of appropriate apparel offers many fascinating problems and possibilities.

To begin with, there are very few circumstances in which it would be permissible to let the faces express any kind of feeling, thought, or action. A charming family scene with a mischievous child, appreciative brother, and scolding parent may be easy and tempting to create, but would condemn to oblivion any lesson the exhibit is actually supposed to teach. Such mistaken dramatizations are not uncommon in exhibits dealing with alien people but have generally been avoided when a museum speaks of its own public and their ancestry.

Granting that the human figures should be poker-faced, we now come to the question of whom they should portray. In the old New England period room, this is not much of a problem, because all tasks were shared by all. But in a period dining room of more stately circumstances, I have seen a full staff of servants in attendance, with a footman behind each chair, and so on, but with neither hosts nor guests in the picture. The idea probably was to extend a particularly loud invitation for the spectators to imagine themselves as guests or hosts according to their preference. The only trouble is that the exhibit gives the visitor no information

about how to dress for the occasion. Other period rooms may have the figures of a maid puttering in a corner, or of a master or mistress, or both, usually more centrally placed and more formally posed.

Finally there are, of course, many museums, particularly in the categories of folk museums and historical villages, from Williamsburg to Oslo, that introduce the appropriate habiliments as the costume of their living guards and guides. Again I believe that the attire of domestics is more often to be seen than the finery of proprietors. It has been suggested that it is more natural and useful to have retainers busy around the premises than it is to have a lady of the house receive the visitors in state. However this may be, there are some interesting questions involved in deciding upon the social level to be represented by the costumed attendant.

A number of years ago I noticed that the women guides of Norsk Folkemuseum in Oslo were not only wearing the proper costume for the regional exhibits in their care, but most of them were also speaking in the proper dialect. When I asked my friend the director if this was not carrying things a bit too far, he smiled and explained that I had merely noticed a free bonus they got from a policy of trying to get guides able to answer questions about the exhibits on their beat from the kind of intimate personal knowledge of their general area of origin that only a native of the region can command. This adds a nice extra fillip, when you can get it for nothing.

An intriguing supplement to the period room may be provided by imitations of the victuals characteristic of a festive meal, set in proper quantity and style on a well-laid table. Nordiska Museet in Stockholm has a series of such period dining rooms that give a lively demonstration of changing tastes and appetites both in food and in furniture. The Elizabethan Room of the Gore Hotel in London makes the spectacle extra enjoyable by adding kissable wenches to the banquet scene. It sometimes seems too bad that the Puritans got here first.

Regardless of what accessories are used and what secondary purposes are served, the essential qualities of the period rooms themselves may be selected with quite different ends in mind.

The goal may simply be to trace the evolution of what we consider good taste today, and to cultivate it further. In this almost purely esthetic approach present taste is applied retrospectively to the selection of objects and arrangements from the past, on the straightest possible course down the meandering stream of fashions through the ages.

I have come to the conclusion that nearly all period rooms in American museums represent this purely esthetic approach. If that is not so, one is forced to assume that all citizens of our country who have been able to make or to buy a home have suffered from impeccably perfect taste ever since the day the Pilgrims first landed at Plymouth. I have a strong feel-

ing that this assumption might not be entirely correct.

In this connection we must remember that the difference between beauty and ugliness is sometimes extremely slight. One of the greatly admired men of Norway could not by any usual standards be said to have had a physically handsome face. His nose drew the kind of jocular remarks that have more recently been aimed at Bob Hope, and so on. But when Kai Nielsen cut Nansen's image in stone he created a face of great masculine beauty which is, at the same time, an excellent portrait of the man it commemorates.

There was hardly ever a period in history which did not produce some expressions of personal taste that seem to point the way toward our own sense of esthetic values. By our selections and arrangements we may sculpture a period room to look beautiful in our eyes, when the manner in which the original owner would have kept it might not have pleased us at all. But usually it is a question of differences too great for cosmetic treatment, and when we still search out our own preferences in the multitude of choices available we may give a grossly distorted picture of times past, even while we truly delineate the origins of our own taste.

When, however, our purpose is to depict the history of fashionable usage and of domestic technology, rather than the genealogy of today's taste, we must let each period select its own room. That is to say, we have to show the kind of room that was admired and imitated by those who could afford it and coveted by those who could not. The results are often far from pleasing to the modern eye, but they have an interesting lesson to impart that cannot be taught by the purely esthetic approach. And there is one thing a museum curator may want to bear in mind in this connection. If he has done his research right, the truly representative historical period rooms he has created will be of lasting validity, because his choice will be based upon demonstrable facts. But his retrospective esthetic selections, being a matter of opinion, may be quickly superseded. One should not forget the lesson of the "art nouveau," which was born sixty-three years ago, died about forty years ago and was revived about ten years ago.

The installation of the historically representative rather than the presently pleasing period room seems generally characteristic of European museums, other than those of the decorative and industrial arts which are primarily concerned with craftmanship and artistic quality.

It is also in European museums that one is most likely to find the purely sociological period room.

The historical period room tries to illustrate the actual taste of a period and its level of household technology. Since both taste and technology find their full expression only in the homes of the prosperous, only the households of the comfortably well-to-do need to be shown. In the serv-

continued on page 334

Fig. 2. Historically representative period room, Norsk Folkemuseum, Oslo.

Fig. 3. Historically representative period room, Norsk Folkemuseum, Oslo.

Fig. 4. Sociological period room, Dansk Folkemuseum, Copenhagen.

Fig. 5. Sociological period room, Norsk Folkemuseum, Oslo.

ice of sociology the period rooms become examples of actual living conditions rather than taste. To draw a true and complete picture of the human way of life in any age, it is necessary to give examples of living conditions at all economic levels of society. To this end the garrets of the poor are added to the opulent apartments of the rich in some European museums.

The period room shares with the habitat group the disadvantage that it uses a lot of space and funds to show a single situation or species. Among the compensating devices used in natural history museums are the special situation habitats mentioned earlier. Analogous solutions can also be applied to the problems of the humanistic museums. Ethnographic museums sometimes make use of scenes from a marketplace in order to show in little space a great variety of people, costumes, food and other products, houses, containers, and vehicles, sometimes even including boats. In museums of history and decorative arts the interiors of stores, theater lobbies, and other places of trade or assembly can be used to show a far greater diversity of goods and garments than any institution could afford to spread out through facsimiles of private apartments. The method is commonly used in historical towns and villages, but much too rarely in museums, where the pressure for space is actually greatest.

The uses of the period storeroom have tremendous possibilities. It would, for example, permit a demonstration of the permutations of an article according to economic level. It can bring together, for comparison of style influences, objects that cannot otherwise be shown collectively in a natural way, but would have to be specially and demonstratively arranged for such confrontations. I am not at all certain that the style of display and decor, added to the style of the articles shown in a department store at any given time, would not reveal the taste and technology of the era more clearly than does a room from a private home of the same period. A special adaptation of this method that might neatly sum up the changes caused by the passage of time would be to show some objects displayed in the manner of the time when they first appeared as novelties on the market, and then to present twin sets of the same articles as they are shown in their new status of treasured antiques among modern products 150 years later.

Another escape from the demand for space is offered by the miniature diorama, which may either be set up for direct viewing or be seen through mirrors that help to increase the illusion. The Thorne miniature rooms in the Art Institute of Chicago are justly famous for their beauty as well as for their effectiveness of communication.

At an earlier Winterthur seminar, Nina Fletcher Little[3] drew a very

[3] Little, Nina Fletcher: *An expanding concept of the period room.* Winterthur Seminar on Museum Operation and Connoisseurship. Wilmington, Delaware, The Henry Francis Du Pont Winterthur Museum, pp. 42–44. 1957.

useful distinction between period room and period setting. The period room recreates the totality of a room and all its contents as it was actually furnished and used by its original occupant, or as it is likely to have been equipped and lived in at the time. In a period setting, only the architectural and decorative features of floors, ceilings, walls, fireplaces, and other permanent fixtures are true to the prototype of an authentic interior, while the space between the walls is being used as a showroom for contemporary examples of furniture and other products of the decorative arts.

Under these definitions it might actually well be argued that a period room which contains nothing but products of its own time is really only an exhibit of the decorative arts in a period setting. Every age has treasured its heirlooms from the past along with its newer possessions. The craze for antiques is just as characteristic of our age as the craving for Danish modern and picture windows. A historically and sociologically true period room should reflect this condition, but a purely esthetic one may be excused from such a literal interpretation of daily life in its era.

The relationship between period setting and period room closely resembles the relationship of faunistic diorama to habitat group, and it is obvious that the period setting, apart from its other merits, also has the advantages of a space-saving exhibition device.

When we move still farther away from the true-to-life habitat or domicile, we encounter yet another type of display which we may call the period gallery. This is a museum hall which, without being a facsimile of any historical archetype, nevertheless, in varying degrees, tries to express the style and evoke the general atmosphere of a past epoch, so that the items shown are seen in a natural and proper esthetic milieu, even though there is no attempt to restore the objects to their original setting in the manner of the period room.

In its most dilute form the period gallery may merely offer a wall treatment vaguely reminiscent of the wood paneling seen in the great homes of Britain as a background for the display of canvases by the English portraitists. It is obvious that the extent of the period mimicry must be related to the primary purpose of the exhibition. In a gallery for paintings only, other echoes of the past probably contribute most when they are muted and subdued.

When furniture and plastic ornaments are part of the exhibit itself, more elaborate suggestions of the style of their surroundings in a vanished age would seem in order, as in some of the fine museum galleries of Renaissance art that do not actually duplicate any Renaissance hall.

Among more recent period galleries, two different trends seem indicated. In some, architectural specimens from the museum's collections, such as doorways and chimney places, are simply shown in their proper

role of permanent house fixtures along with the display of mobile furnishings and ornaments of the same age. The inclusiveness of the sampling makes the impact of the whole more evocative than the sum of the impressions conveyed by the constituent parts. But the room itself is reduced to a more or less neutral container requiring only superficial changes of texture and color to serve the exhibits of another period equally well. Lacking architectural unity and specificity in its own design, the gallery can communicate only the feeling of details but not the sense of space that was equally characteristic of the period represented. This is the explanation for the seeming paradox that expositions limited in this manner to whatever can be achieved by the use of "the genuine articles," only, often seem less convincing than do those that boldly use entirely new forms to illustrate old concepts.

In the other type of period gallery of relatively recent origin, the permanent form and features of the hall itself are made to convey an important part of the message from the past, even though it is not delivered in a voice from the grave. In the architecture of such a gallery the esthetic spirit of an age is reincarnated in modern materials rather than slavishly restored from old models. Surviving parts of old structures, even to the extent of an entire ceiling, may be incorporated, but only so far as they fit and enhance the over-all design. The integrity of the whole is a paramount consideration in the architectural molding of the hall itself, according to concepts borrowed from another age. Rules of physical authenticity are rigidly applied only to the exhibit within, but not to the gallery that houses them. The entire spectacle of the exposition is given an active role to perform, without neutral parts for any component. So far this method of exhibition[4] has been used mostly for the presentation of religious art and furnishings, but its possibilities are not limited to any particular class of articles. It is a method that leaves great freedom for the designer's ingenuity and artistic skills, and I consider it entirely possible that this may in the end prove the most challenging and the most rewarding display technique available to museums dealing with the history of our material and artistic culture.

[4] Parr, A. E.: *Mood and message,* CURATOR, vol. VI, no. 3, pp. 204–216. 1963.

Mood and Message

Mood and Message

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

When we speak of the mood or the atmosphere of a place, a play, or a novel, we usually have a very clear idea of what we mean but may nevertheless find it extremely difficult to give a verbal definition of what we have in mind. The difficulties multiply when we attempt to voice comparisons. Is mood a quality without dimensions or a measurable quantity? In a person it relates to the emotional tone of his state of mind, and the mood of an external stimulus might perhaps be described as the sum and pattern of its affective attributes for a person of normal susceptibilities. The measure of the mood expressed in the image of the environment is therefore the intensity of feelings it evokes, while its qualitative character is identified by the nature of our emotional response. These are dimensions and identities that it should be possible to record with a fairly high degree of objectivity and accuracy.

It is obvious that the mood of an environment is generally not inherent in its physical properties. Exceptions to this rule, if any can actually be shown to exist, might conceivably be claimed near the limits of our sensibilities. For example, "blinding light," "deafening sound," and "unbearable pain" may have intrinsic qualities of mood, as may extremes of sensory deprivation such as total darkness or absolute silence. But, within the limits to which we can manipulate the variables in exhibition design, it is safe to say that mood in the museum is entirely a product of associations between present aspects and past events in the minds of the visitors. This means that the mood of an exposition can never be quite the same to two observers, but the universality of many ingredients of the human experience nevertheless gives us a common basis for our efforts.

While the mood of a scene is in the eyes of the beholder, it is also in the vision of the creator of the spectacle. Mood is therefore even more important for the proper appreciation of the arts of man than it is for our comprehension of the ways of nature.

The objects in a small private curio cabinet gain significance from their association with memories of the owner's past that are not likely to be, or to remain, entirely unfamiliar to his guests. The setting of the display usually has a very definite atmosphere imparted by the owner's taste and personality. In this context we discover a certain affinity between the concepts of mood and of personality. We sometimes speak of an impersonal mood, which we think of as something very cold and lacking in affective qualities. By the same token an exhibit that is said to have personality may appeal or repel, but, for good or bad, it involves our emotions and thereby reënforces its imprint on our minds. As the cherished possession of a private collector an object acquires a new meaning, supplanting the significance of the original purpose from which it has become divorced. This is one of the main reasons why we may be fascinated by an article of personal property to which we would not give a second glance if it were in public ownership. It is also an indicator of one of the greatest problems of effective museum display, namely, the decline of emotional appeal caused by a progressive elimination of specific associations between an object and persons, purposes or events that are known and important to the spectator.

The period room is often thought of as the humanistic counterpart of the habitat group. Both attempt to simulate a total situation in which the particulars of the exhibit would normally belong. But, from another point of view, the period room may also be regarded as the simplest, although not the least expensive, method of creating a compatible mood for the display of the individual objects by the feigned restoration of associations that may have had no reality in the past of the particular articles shown. The period room therefore makes an effective contribution to the qualities of a museum experience, which the habitat group does not attempt to achieve but rather eschews by its avoidance of intimate involvement in human affairs. This is not to deny that a habitat group may also arouse an emotional response, but merely to say that the feelings kindled by the beauty or the mysteries of a view of nature are on a different and less personal plane. The benefits gained from the habitat group are primarily cognitive rather than affective. As a mood-generating device it has much less to offer than the period room.

When the method of the period room is used, it presents only a straightforward task of meticulous research and choice craftsmanship. It involves no complex theoretical and practical problems of esthetic design, visitor psychology, and educational purposes and practice. Imitation assumes the validity of the prototype.

But there are many circumstances in which period room or habitat group are neither practical nor desirable. Added to their high direct costs of production are the equally high indirect costs of their great demands

upon space. On the didactic side, their emphasis upon a total situation makes them poor vehicles for communciation of facts and ideas that require concentration on the peculiarities of individual objects, singly or in serial comparisons. The museum may also lack the information or the companion pieces necessary to imitate with reasonable verisimilitude the original setting of the principal item to be shown.

When the period room for one reason or another fails to recommend itself as a method of presentation, the museum is bereft of its simplest and most direct means of creating a suitable mood for the proper appreciation of its treasures. Suggestion must take the place of explicit statement in trying to involve the feelings as well as the intellect of the viewer in the act of observing what there is to see. The variables that seem most effective in achieving mood by suggestion include lighting; the form and dimensions of space, particularly the proportions between height and width; the pattern, substance, and color of the floor; the color and texture of walls; and the architectural detailing of the ceiling, including the color.

In American museums we are generally inclined to think of the floor primarily in the utilitarian terms of a housekeeping problem. We want the floor to look nice and smart, if possible, but demand above all that it must be practical to clean and economical to maintain. The prevalence of terrazzo, linoleum, and asphalt tile may contribute much more than we realize to the public notion of museum monotony that often gets in the way of our effects. Whatever he may have done in the past, modern man does not walk with his eyes on the stars. The policeman warning pedestrians on the corner does not say "eyes down." He says "heads up." As we walk along, we are scarcely aware of the ceiling or the clouds above, while the floor or the ground fills the largest part of our field of vision and receives the lion's share of our attention under the burden of our thoughts and for fear that we might fall. And to such view and note we habitually expose the dullest and most unimaginative surface that modern efficiency and mass production enable us to install.

An awareness of the visual importance and mood-generating possibilities of the floor has apparently been less uncommon among the historical mu-

continued on page 210

Fig. 1. Hall of church art, Norsk Folkemuseum paa Bygdöy, Oslo.

Fig. 2. The Romanesque gallery, Statens Historiska Museum, Stockholm.

Fig. 3. The entrance hall, Statens Historiska Museum, Stockholm.

Figs. 4, 5. The hall of Gothic church art in Statens Historiska Museum, Stockholm, seen from opposite ends.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

seums and folk museums of Europe than it has been elsewhere. It is interesting to note the carefully planned contribution made by the floors to the total appearance of the halls shown in Figures 1 to 5. The hall of church art shown in Figure 1 is a particularly instructive example. The Norwegian Folk Museum had to use considerable powers of persuasion to make a manufacturer willing to produce the oversized clay tiles for this floor, which were purposely so unevenly fired that they could not, according to modern standards, have been offered for sale, but would have to be discarded as "culls." The result is a rich quilt of colors ranging from an ochreous orange to deep terra cotta red. To complete the mood of a setting appropriate for the display of sacred art, the texture and color of the walls recall the whitewashed masonry common in Scandinavian churches, and the shapes of some Roman arches add their final contribution to the suggestive power of the interior design. Figure 2 shows a very similar treatment of church art in another museum. While the hall represented by Figures 4 and 5 is far more directly and explicitly suggestive of historical prototypes, it is nevertheless not a period room but an exhibition hall for separately arranged objects of Gothic sacred art related through their style but not necessarily through previous coexistence.

In the entrance hall shown in Figure 3, side lighting fading toward the opposite wall, unusual proportions between the three dimensions of its space, and between the space and the objects it contains, ceiling details, floor characteristics, and other elements of design are all used in a singularly forceful manner to summon before the visitor's inner eye the brooding spirit of the Norse sagas.

The Buddha room in the National Museum of Ethnology in Leiden (Fig. 6) is very different in its physical details from the examples used in the preceding illustrations. It is also much more narrowly focused in subject matter and objective contents. The Buddha room relies almost entirely upon the contrast between light and darkness as the vehicle for the achievement of its mood. The visitor does not enter the Buddha room directly, but through a dark antechamber similar to the antechamber of a photographic darkroom, in which the eyes accommodate to the darkness that awaits beyond. A bench faces the Buddhas along the opposite wall. The visitor's area is left in darkness, as in a theater, with light streaming via mirrors down over the Buddhas from above, and slightly in front of the figures, away from the spectators. The entire tableau is an invocation to

Fig. 6. Buddha room under normal illumination, Rijksmuseum voor Volkenkunde, Leiden, The Netherlands.

Fig. 7. Iroquois False Face Society dancers. Temporary exhibit, The American Museum of Natural History.

Fig. 6

Fig. 7

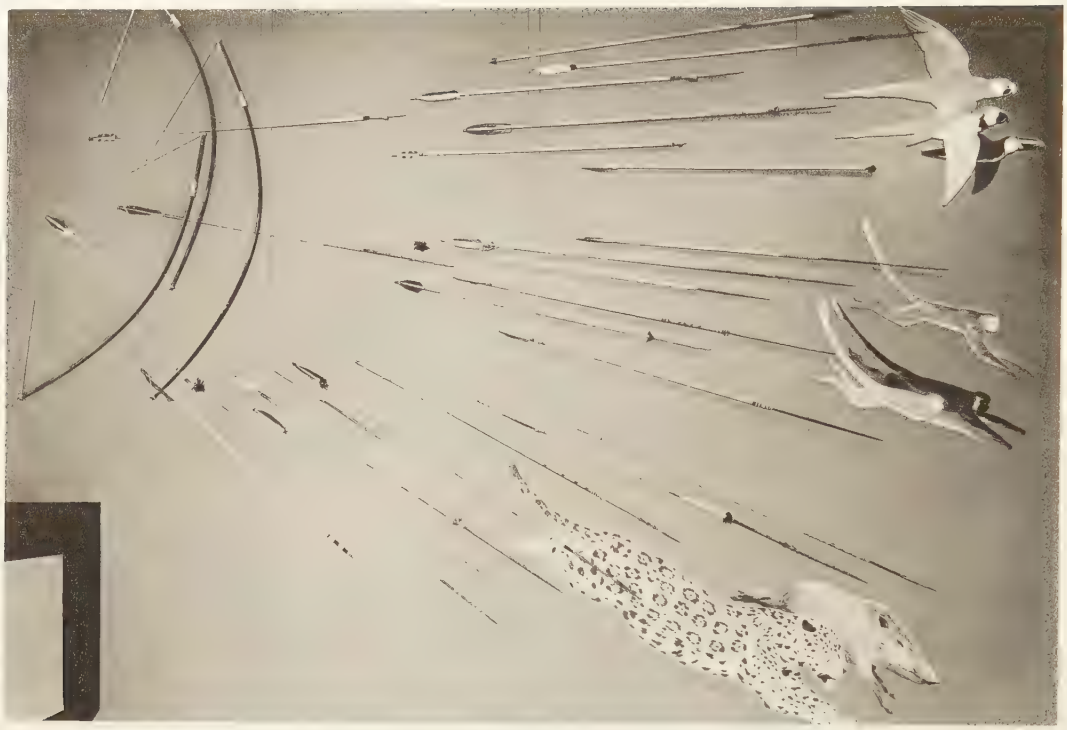

Fig. 8

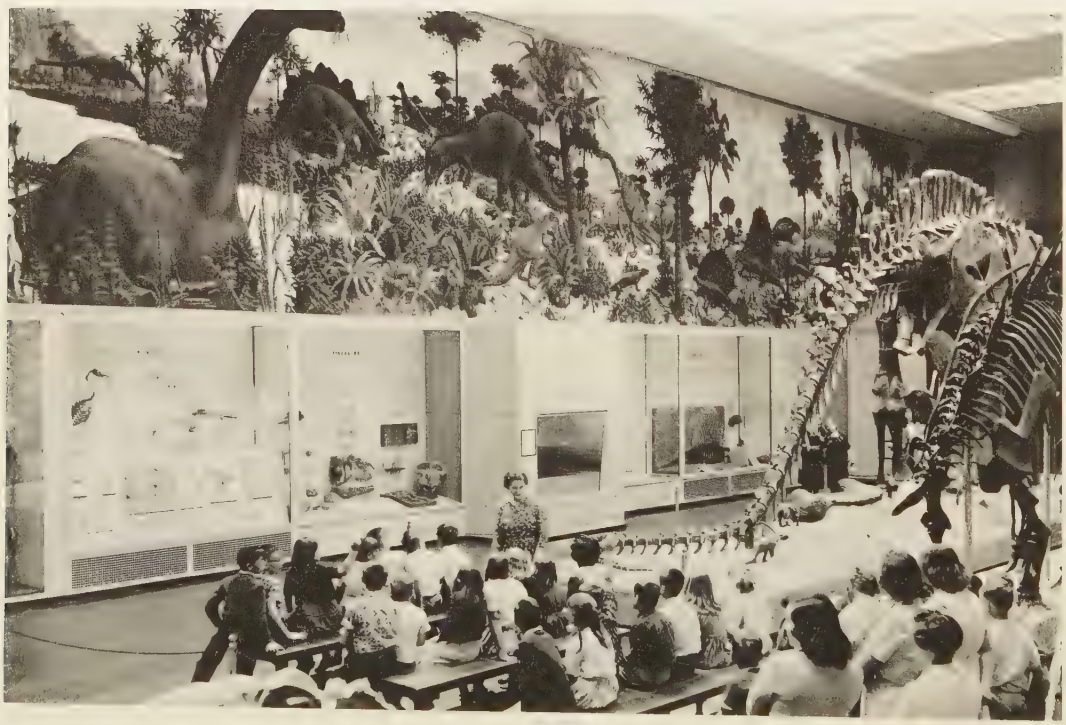

Fig. 9

enter the contemplative mood which is the only proper frame of mind for the appreciation of Buddhist art and thought.

The manuscript for the preceding had been finished or completely prepared in notes ready for transcription before the writer had the opportunity to become acquainted with the ideas expressed by Dr. Pott during the International Council of Museums held in The Hague in 1962, and since published in the last issue of CURATOR (Vol. VI, No. 2, April, 1963). It is interesting that Dr. Pott and the writer both chose the Buddha room to illustrate their thoughts, but selected different photographs of the identical view for their purposes.

In addition to the curio cabinet manner of showing museum treasures, Dr. Pott identifies three different styles of display: the esthetic, the romantic, and the didactic, according with three kinds of motivation that bring visitors to museums. Dr. Pott recognizes that most exhibits contain an amalgam of the three styles and that most visitors are driven by a mixture of motivations, but his emphasis is on the component parts of drives and spectacles.

Apart from a certain doubt that the simple and compelling curiosity which man shares with kittens and puppies can be properly classified without the introduction of a fourth category of urges and offerings, perhaps larger than the other three, the writer's thoughts are not in disagreement with those of Dr. Pott. The difference is rather in the angle of approach, with the focus here being on the blend rather than the ingredients of attitudes and displays. But this reorientation of point of view may, at times, lead to a different evaluation of the same exhibit or situation.

Dr. Pott regards the hall of the Buddhas as an example of the romantic form of exposition, while to the present writer it is a didactic display with a primarily esthetic message. In the photograph used by Dr. Pott, the canopy above the sculptures receives some illumination from extra lighting introduced to obtain a more precise definition of contents, at some sacrifice of felicity in the rendering of mood. Figure 6 in the present article tries to preserve the full impact of the actual mood of the presentation as seen by the visitor. Figure 6 should therefore, if anything, seem more romantic than the illustration previously used. The mood of this exhibit is, however, an essential attribute of its didactic message concerning the esthetics of the objects shown, for reasons that have already been suggested above. The entrance hall shown in Figure 3 is perhaps a better

Fig. 8. Exhibit illustrating the uses of various types of Indian arrows, The American Museum of Natural History.

Fig. 9. Mural by R. Zallinger illustrating the evolution of amphibians and reptiles, Peabody Museum of Natural History, Yale University.

illustration of a truly romantic treatment, inasmuch as its emotional impact does not elucidate the lessons of its contents, but rather serves to create a general attitude of yearning for knowledge of the past. To get a clearer picture of the relationship between style and purpose in the arts of exhibition, it may be well to turn our attention from the mood of an entire hall to the temper of individual exhibits.

Figure 7 is taken from a temporary exhibition of masks. On first thought it might seem a highly romantic presentation, with its dramatic lighting and postures. Actually it underplays the drama of which the objects in their normal usage were a part. The masks were made to be worn at dances around an open fire at night. It would be absurd to assume that the artists who made them did not take any account of the conditions under which their work would be seen. The boldness of features seems designed for even bolder shadows, and the economy of detail for circumstances that do not permit minute observation. It may be amusing to speculate on whether or not the Indians consciously exploited the play of shadows in the flickering light from open flames, and thereby became true creators of a mobile art rather than static sculpture. In any event, it is quite certain that to show such masks in a diffuse, shadowless, and undramatic illumination is just as much a violation of their esthetic and artistic qualities as it would be to overpaint and alter the colors on a canvas by Kandinsky or Gauguin.

A similar problem arises, for example, in connection with the display of ancient textiles from countries where, for reasons of climate, the weaving had to be done indoors when windows were still quite small or lacking. In the Folk Museum in Oslo a fine collection of such rugs and blankets is shown in a modern room, but one having very small windows in order to simulate the level of illumination at which the textiles were made and for which they were intended. In a stronger light the colors become far more vivid than the weaver ever saw them, and again the effect would be the same as an overpainting of the artist's own work. The examples could be multiplied many times.

In order to arrive at a definition of the totality of an exhibit, it is necessary to give separate consideration to its methods and to its purposes and to classify each of these according to its own predominant features. A purely esthetic exhibit would be one that aims solely at developing appreciation for the directly perceived beauty of the article shown and uses no informative collateral material or visual effects not emanating from the object itself. A contemporary painting simply hung in a gallery for the public to admire would fall into this category. But if the work belongs to an alien tradition or a distant past, it is often necessary to influence the attitude or increase the knowledge of the spectator, even though the sole aim of the exhibit may be the stimulation of esthetic appreciation. We then have

didactic exhibits of esthetic purpose achieving their effects through mood or contents, or both, as in Figures 6 and 7. The important point to remember is that even the most dramatic tonal qualities used in a presentation may be an intrinsic and essential property of the didactic message and not an extraneous adjunct.

Since we always strive to make our exhibits as attractive as we are able, there is always an esthetic factor in our display efforts. Sometimes we rely so heavily upon the esthetic elements to carry our information, with little or no verbalization, that we may speak of esthetic exhibits with a cognitive didactic function, just as we have already spoken of didactic exhibits with a primarily affective esthetic purpose. Figures 8 and 9 give examples of what we may call esthetic exhibits of didactic intent, as distinct from the didactic arrangements with an esthetic aim shown in all the preceding illustrations, except Figure 3 which depicts a scene that has already been characterized as a romantic presentation.

The concept of romanticism is one that invites semantic confusion. Both Dr. Pott and the present writer have used the word in different contexts and possibly with different meanings in a previous issue of this periodical.[1]

With reference to exhibits the term "romantic" is here used to denote such installations as: (1) scenes gratuitously presenting currently common events and phenomena in a past setting designed to invoke nostalgia at

[1] Pott, Peter H., "The Role of Museums of History and Folklore in a Changing World," CURATOR, vol. VI, no. 2, April, 1963, pp. 157–170. Parr, A. E., "Realism and Romanticism in Museum Exhibits," CURATOR, vol. VI, no. 2, April, 1963, pp. 174–186.

Fig. 10. Old Pygmy exhibit in The American Museum of Natural History.

the expense of a proper awareness and understanding of the present, or spectacles tending to stimulate fantasies and yearnings that do not accord with the realities of life; and (2) displays that involve the thoughts and feelings of the spectator in possibilities beyond the facts actually shown in the presentation. In the first category the romanticism is one of contents; in the second category it is a product of style. Both may have a legitimate function when properly used as seasoning for the show, without being allowed to set its general tone.

Under the definitions that have just been proposed a dramatic scene is not necessarily romantic in the museum any more than it is on the stage, but may very well come under the heading of realism even when the human form in effigy is part of the museum tableau. On this point there may be a difference of semantics but probably not of substance between Dr. Pott and the present writer. To gain a full understanding of the material culture of other people, it is not always enough to know how they use their inventions. It may also be essential to know the circumstances in which they are used, just as it may be of the essence to have an insight into the conditions under which artists of other times or places created and enjoyed their own works and presented them for others to see. The human scene shown in Figure 10 scarcely brings to mind the word "romantic," although the show may be both appealing and instructive.

Dr. Pott has beautifully stated the purpose of museums of history and folklore to be the demonstration of how anonymous man succeeded in wresting a little happiness from his environment and from his own nature. If we add the task of trying to teach our own visitors to do the same, we define a goal that should be the aim of all museums. In striving to contribute to greater happiness, we must remember that happiness is a feeling and that our visitors respond with their feelings as well as their intellect to all that they see in our halls. The emotional contents of an exhibit, whether rich or lean, is a reality that cannot be denied or separated from the intellectual message. We should therefore take as much care in planning the tone of an exhibit or the mood of an entire hall as we do in preparing its subject matter for visual presentation.

Realism and Romanticism in Museum Exhibits

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM
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Fig. 1

We have learned to become suspicious, if not deeply scornful, of generalizations because of their tendency to lead only to vapid generalities or even vicious notions of universality, depending upon the temper of the generalizer. The discovery and definition of prevalent traits in a diversity of particulars are, nevertheless, indispensable tools of reasoning on any subject and need no excuse, when properly used with full recognition of the difference between typical features of common occurrence and universal characteristics from which there can be no exceptions. With this unnecessary apology out of the way, generalizations are now in order.

An observant traveler away from home soon begins to notice that certain impressions of unfamiliar things repeat themselves more often than others. And an ardent visitor to natural history museums here and abroad may come to sense a difference of attitude behind the choices of exhibits and the complexions of their presentation. So the notion of a prevailing contrast between a temper of earthy realism in the museums of the Old World and a lighter spirit of almost sentimental romanticism on this side of the Atlantic has gradually taken root in the mind of at least one such museum wanderer. Let us begin with some rather obvious examples.

The Zoologiske Museum in Oslo shows a group of African scavenger birds feasting upon the head of a dead zebra, with matter oozing out of eyes, nose, and mouth, and maggots competing with the birds for the delectable dish. This is true nature-in-the-raw—raw enough to turn a queasy stomach. The exhibit was installed in the early 1920's.

Fig. 1. Scavenging and decay in Zoologiske Museum in Oslo.

Fig. 2

At the other extreme, the Carnegie Museum in Pittsburgh provides us with some of the most charming examples of the romantic view of nature. The habitat group of American vultures scavenging upon the carcass of a deer is less spectacular than some of the other examples, but it offers a direct comparison with the Oslo exhibit. There is no gore, no pus or maggots, disturbing the serenity of the departed deer. Its skin might still provide a perfect deerskin coat, and there is nothing to suggest that the body would not provide delicious venison for the dinner table. To top it all, the deer has not been killed by the tearing claws and teeth of a natural enemy, or by the prosaic bullet of a modern rifle. The lethal weapon is a romantic Indian arrow sticking out of its flank. There is no evidence of what happened to the Indian.

In one instance, we have seen death in all its ugliness, and scavenging as nature's nauseating way of garbage disposal. In another museum scene, death is beautiful, and scavenging a polite and fastidious meal that would pass the scrutiny of any meat inspector. To be sure, these are only two examples, but there are many more. While we are still on the subject of dust returning to dust, we might also refer to an exhibit in The American Museum of Natural History illustrating the processes of decay by which nature continually reclaims its own substance. This is part of an exhibition hall planned by the present writer. The original script, somewhat facetiously, called for "a couple of cakes of cow dung, tastefully arranged" and "the carcass of a young rabbit pleasantly rotting away on the side," among other things. In the execution some changes took place, the dead rabbit became a dead crow, and there were other additions and subtractions. But the spirit of the script was brilliantly adhered to by the artists, and the exhibit might perfectly well be used as a somewhat bizarre but in no way offensive decoration on a banquet table, where it could scarcely discourage the daintiest of appetites. Nevertheless this exhibit does not actually sin by omission. It is rather that it does subtle penance for the ugliness of its subject by the artistry of presentation, in ways that are hard to define.

For another example that comes to mind, I cannot recall an exact counterpart from the Old World, although I have a definite impression of having seen exhibits that would be directly comparable without being identical. When going over the plans of the Hall of Human Biology in The American Museum of Natural History, I raised the question of whether we should not teach the "facts of life" in the true colors of the flesh and moist membranes in a series of otherwise realistic models of the

Fig. 2. Scavenging in the Carnegie Museum in Pittsburgh.

Fig. 3. Decay in The American Museum of Natural History in New York.

birth of a baby. But the suggestion met with unanimous opposition as being too brutal. The models now show entirely unrealistic, dull, almost granular surface textures and equally dull and unreal colors strongly suggestive of advanced jaundice.

In the comparisons we have already made, we have been mainly concerned with a conflict between realism and squeamishness, with only a small pinch of romanticism thrown in by an Indian arrow. But fastidiousness need not be involved in the desire to improve upon the everyday realities of life. Romanticism alone can lift a presentation to spectacular dramatic heights, as shown by the fascinating exhibit of a "Camel-Driver Attacked by Lions" shown in the Carnegie Museum in Pittsburgh. Although created in Europe for a temporary exposition, this romantic tableau naturally found its permanent home in America.

The romanticism in American museums seems to contain a strong element of anti-humanism. At least it is very definitely anti-paleface. Perhaps some sublime poetic justice is finding expression here. When human figures were needed to give scale to the miniature habitat group of a redwood forest in The American Museum of Natural History,[1] they were not the figures of the white tourists one actually can meet anywhere. It was simply taken for granted that it would have to be the figures of half naked, pre-Columbian Indians who are not to be seen any more.

When we examine the situation more closely, we find that the romantic attitude is not antagonistic to man as much as it is opposed to man's technological progress. The arrow is acceptable; the rifle bullet is not. A doctoral dissertation might be written on the psychological implications of the Bedouin and lion group. Let us only call attention to the fact that the Arab rifle has already been taken out of the battle and now lies uselessly on the body of the first lion, while the camel rider is defending himself against the second attacker with only a dagger.

Turning again to the Old World, we find in the natural history musem of Bern, Switzerland, a series of excellent habitat groups showing mice in a milkshed, brown rats among sewers and garbage, black rats in a pantry, and a weasel in a chicken coop. The writer cannot recall having seen comparable exhibits of mammals as vermin of the human abode in any American museum of natural history.

The treatment of the relationship between birds and man is perhaps even more revealing. The British Museum has a "Scene in a Stackyard," showing birds sharing with man the occupancy of a contemporary farm.

[1] See Parr, A. E., "The Habitat Group," CURATOR, vol. II, no. 2 (1959), figs. 23A, 23B, p. 127.

Fig. 4. Camel-driver attacked by lions, in the Carnegie Museum in Pittsburgh.

In the Museum of Bergen, in Norway, birds are associated with various modern tools, ornaments, and devices.[2] And the natural history museum in Bern displays a habitat group of house martins which is of particular interest. The nests of the martins are hung under the eaves of an obviously well-maintained modern farmhouse, and two bright copper wires connecting with shiny porcelain insulators fastened to the wall of the building near the nests make it absolutely unmistakable that the exhibit deals with things as they are today.

The house martin is not found in America, and material for a direct comparison is therefore lacking. But a tendency to avoid any entanglement with modern man, instead of seeking it out in our exhibits, is evident in our presentation of many natural history topics. In relation to oceanic birds and ship followers, a modern tanker or passenger liner would convey the same message as that carried by the bright copper wires in Bern. But our minds promptly turn to the "good old days," and we immediately see our very contemporary birds from the deck of an almost extinct sailing ship. Not even a rusty old tramp steamer is allowed to mar the romance. In another context, we close our eyes to maple sugaring as a current activity, and prefer to recall it as it was practiced a hundred years ago.

In these illustrations of our own romantic leanings, we have found a preference for the remote in space, in time, and in human kinship, while museums elsewhere often make quite demonstrative efforts to relate their exhibits as closely as possible to the time, place, and personal life of the visitor. An evaluation of the relative merits of the two methods of approach is not so simple as it might seem on first thought.

In science and education, it is our moral obligation to strive for a realistic point of view as the ultimate goal of our efforts, but this does not entirely preclude the use of romantic ways of reaching our destination. Romanticism tempered with maturity enriches our life through the arts, through our emotional relations with individuals and with nations, and in our contemplation of beauty in our environment. Even the scientists themselves have probably more often than not been emotionally drawn toward their subject before they embraced it with the cold logic of strictly objective reasoning. There is no reason to deny the same stimulus

[2] See Parr, A. E., "The Revival of Systematic Exhibits," CURATOR, vol. IV, no. 2 (1961), fig. 21, p. 137.

Fig. 5. Mice in milkshed. Naturhistorisches Museum, Bern, Switzerland.

Fig. 6. Brown rats among sewage. Naturhistorisches Museum, Bern.

Fig. 7. Black rats in pantry. Naturhistorisches Museum, Bern.

Fig. 8. Weasel in chicken coop. Naturhistorisches Museum, Bern.

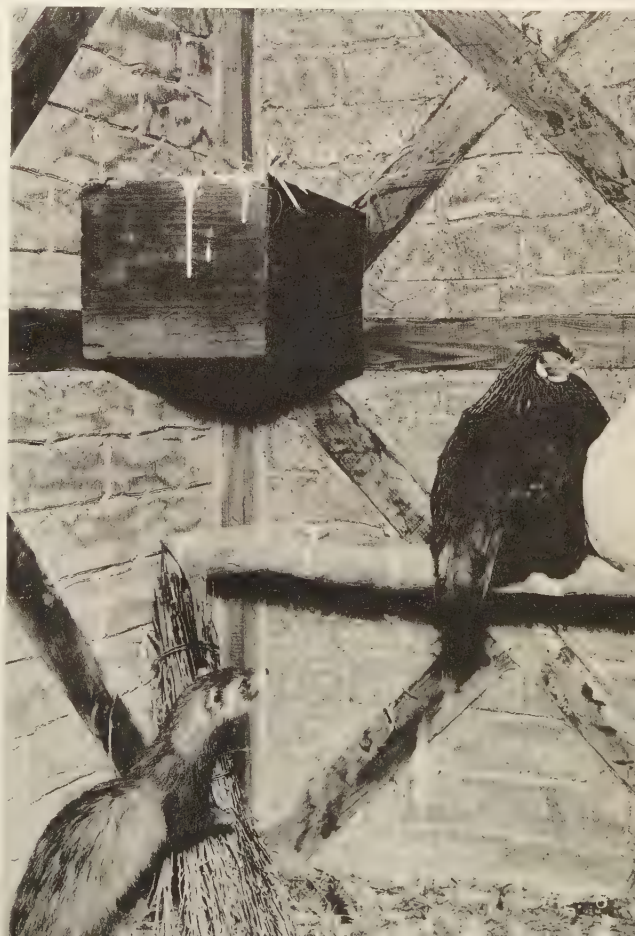

Fig. 9

Fig. 10

Fig. 11

Fig. 12

of the imagination to those who merely seek the enrichment of their own mind without opportunity to contribute to the enrichment of human knowledge. But the helpful inducements of the romantic mood are also imbued with dangers that must be carefully guarded against. The dangers lie not only in one but in many directions.

One type of romanticism, of which many examples have been given, actually represents a wistful withdrawal of nature from the affairs of man. Exhibits of this kind must inevitably fail to help the human species gain a better understanding of its own place in the natural environment and may, by their cumulative effects, even give rise to misleading and dangerous ideas. In the process, the museum creates an esoteric image of itself, which weakens its own claim to any essential educational function.

But perhaps the greatest danger of romanticism springs from its weakness for sentimentality, which so easily leads on to sensationalism, particularly in this scornful age when tenderness turns to cynicism and romantic poetry has been replaced by romantic advertising of supercolossal superiorities among the indistinguishable products of a homogenized industrial civilization. Many exhibits already emphasize the spectacular rather than the typical and significant, and perhaps it may be necessary to pass through an excess of sensationalism before our consciences or our supporting public will recall us to our duties of teaching life as it is actually lived under normal circumstances.

We might seem to have come to the end of our subject—but not quite. All our examples have referred to exhibits that are romantic in contents but may very well be entirely realistic in style of presentation. There are also exhibits that are quite straightforward and unadorned in regard to subject matter but, nevertheless, decidedly romantic in mood and artistic style of presentation (see Figs. 14 and 15). Sometimes there may be the added fillip of a romantic choice of locale that makes its impression through a name on the label rather than a feature of the display. "The New Forest Bird Group" (Fig. 16) offers a case in point. Inquiries have shown that the charming appeal of these misty-eyed but perfectly honest views of nature has, in most cases, not been deliberately sought but has emerged only as the happy by-product of measures of economy. An intriguing veil of mystery is drawn over lesser details for the simple purpose of saving the artist's brush and time. But it may be well to inquire

Fig. 9. Scene in stackyard. British Museum (Natural History).

Fig. 10. House martins. Naturhistorisches Museum, Bern.

Fig. 11. Ship followers. The American Museum of Natural History.

Fig. 12. Birds of southern oceans. Academy of Natural Sciences of Philadelphia.

Fig. 13. Maple sugaring. The American Museum of Natural History.

if this mystique cannot in itself be of invaluable aid in the task of communication by means of exhibits.

Using the deeply scorned method of introspection, perhaps many of us would be able to record the observation that the most crystalline and precise realism, like glacial beauty, elicits our intense but respectful admiration, without arousing any particularly strong desire to enter the world we are shown, while the less finished products of economy may draw us more strongly toward their horizons.

Actually the eye is less realistic than the painter's brush applied in the manner of extreme realism. Even after an hour of gazing at a well-known and beloved landscape the image in our mind will hold only a fraction of the details that an artist can commit to his canvas by minute scrutiny of a small area of the view at a time. A surfeit of realism spread before the eyes of a visitor with normal acuity of sight and perception may therefore very well bring about a sense of unreality, at the same time as it provides for the satiation of curiosities that should merely have been aroused.

The romanticism of style that spurs the imagination has none of the dangers of the romanticism of contents that blurs the truth, and the mysteries of romantic rendering have values that complete realism completely destroys. It might be well to remember that the purpose of an exhibit is not to furnish its makers with a vicarious total recall of where they have been, but to communicate some of the lessons and excitement of a location to others who have not seen the site and therefore respond from totally different premises. In short, let us remember to speak to our visitors and not to ourselves.

Fig. 14. Duiker antelope. The California Academy of Sciences, San Francisco.

Fig. 15. Takin group. Academy of Natural Sciences of Philadelphia.

Fig. 16. New Forest Bird Group. The American Museum of Natural History.

Fig. 14

Fig. 16

Fig. 17

The Habitat Group

A. E. PARR, DIRECTOR
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Our natural history museums are the direct descendants of the curio cabinets of private collectors. In the early years of the public museums the family likeness was distressingly plain and unrelieved by any redeeming features. Our birds were mounted on uniform "T" perches in seried ranks on endless shelves, or "tastefully" arranged against backgrounds of fine woods competing with the specimens in quality and splendor.

A primitive forerunner of better things to come may perhaps be seen in the ornamental arrangements of birds on a bush that were popular in many early Victorian homes and soon found their way into the museums. It does not seem unreasonable to assume that contemplation of these decorative "conversation pieces" may have suggested the idea of the habitat group to many of the curators around the world, who seem to have recognized the possibilities of this kind of display more or less simultaneously and independently.

It would actually take very little to change the "conversation piece" into a habitat group. Substitute the two sexes and the young of a single species for the variety of often incompatible species on the same bush, add a nest on one of the branches, and you have an exhibit of the semi-habitat type that quickly led to the full-fledged habitat group.

The semi-habitat group does not attempt to create an illusion of the larger environment in which the animal lives. It simply reproduces a small, rectangular section of nature entirely removed from its normal surroundings. It is commonly open to view from three, or even from all four, sides and is often unaccompanied by any auxiliary material, except the label. Although pictures may be introduced as separate vehicles for additional information, the semi-habitat group uses no background painting to form an integrated whole with the foreground, and suggests no distances in any direction. This disregard for horizons and perspectives actually has some very significant advantages, quite apart from the economic ones. It

permits the semi-habitat group to offer the intimate details of natural life for close and convenient inspection by the visitor. He does not have to bend, or look down, to learn about the turtle in the pond, or stretch his neck for a view of the swallows under the eaves. Although it represents a primitive stage in the evolution of habitat exhibits, the semi-habitat group therefore still remains an extremely useful type of museum display.

By themselves alone the semi-habitats did not offer enough variety of scale and of form of presentation to make more than a slight crack in the vast monotony of specimens on array, as early pictures show. Nevertheless, even the first semi-habitat groups required very little improvement to stand comparison with the best of their kind made today. What has been added over the years has usually been supplementary to, rather than part of, the semi-habitat itself. A modern example is the use of botanical semi-habitats together with actual soil sections, pictures of typical landscapes, and other items to illustrate the association between surface vegetation and underlying mineral foundations. The semi-habitat method also has great technical, as well as economic, advantages for the portrayal of greatly magnified segments of life in nature. The great dramatic impact of such enlarged microcosms adds to their educational value.

The dawn of a new era, already heralded by the semi-habitats, began with the introduction of the full-fledged habitat group. In the habitat group the museum tries not only to present the appearance of the species but also to tell as much as possible of its ways of life and its relationship to the environment. The educational success of the effort depends as much upon the cooperation of the animal as upon the knowledge of curators and the talents of artists. In order to make it possible to present a truly important segment of the life of a species within a few square feet of display, the species must itself concentrate the major events of its experience within a small area, preferably sharply focused upon a single center of attention. It is in dealing with the home builders that the habitat group has its greatest educational usefulness. In telling the story of the homeless roamers, the contribution of the habitat group is more important for the esthetic pleasure it gives than for the amount and significance of the information it adds to the display of the species.

Fig. 1. Specimens against a background of fine woods. The American Museum of Natural History.

Fig. 2. Ornamental arrangement. The American Museum of Natural History.

Fig. 3. The first semi-habitat groups scarcely broke the monotony of specimens on array. The former Synoptic Bird Hall of The American Museum of Natural History, now dismantled.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 4. An early semi-habitat group. The American Museum of Natural History.

Fig. 5. The semi-habitat group still remains extremely useful. The American Museum of Natural History.

Fig. 6. Modern botanical semi-habitat group with accessory exhibits. The American Museum of Natural History.

It was logical that the habitat group should make its first appearance among our bird exhibits. Without violating the order of nature, we are able to present the entire family life of a bird within a few square feet. Nests, eggs, young of various ages, care of the young, division of labor between the adult sexes, and feeding habits can all be shown in a single exhibit of modest and therefore relatively economic size. By the logic of the initial choice of suitable subjects, with realistic limitations upon their scope, the earliest habitat groups actually achieved a maximum realization of the educational possibilities of the habitat method.

When the use of the habitat method was extended to mammals, the mere size of the beasts forced a tremendous increase in the dimensions of each exhibit, at the same time as the natural habits of these animals made it impossible to tell nearly as much about their life, even within an enlarged setting, except in the case of a few home builders such as the beaver. From the intimate habitat groups of bird life there thus evolved a somewhat different kind of exhibit which we may perhaps describe as "mammals with natural landscape."

A second change of focus took place when the dimensions introduced as virtues of necessity in mammals with landscapes subsequently came to be regarded as virtues in themselves for the planning of bird habitat groups of a later period. The intimate contact with family life in nature offered by the first bird habitats was often entirely lost in spectacular vistas.

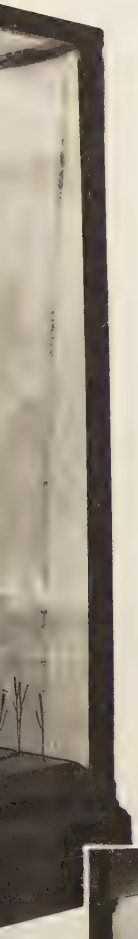

Fig. 5

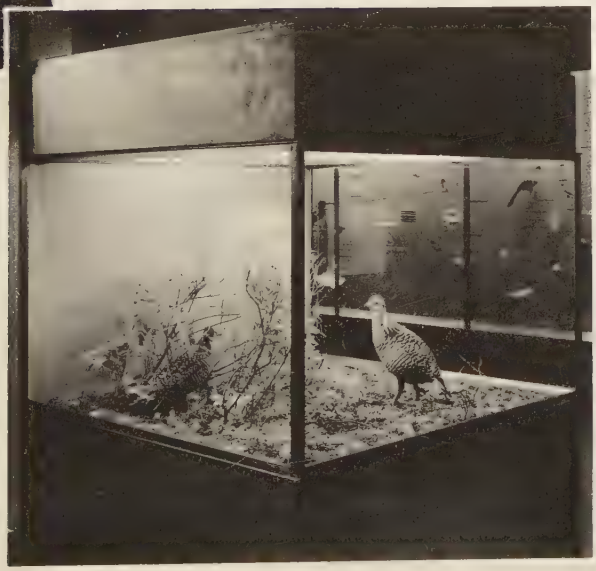

Fig. 6

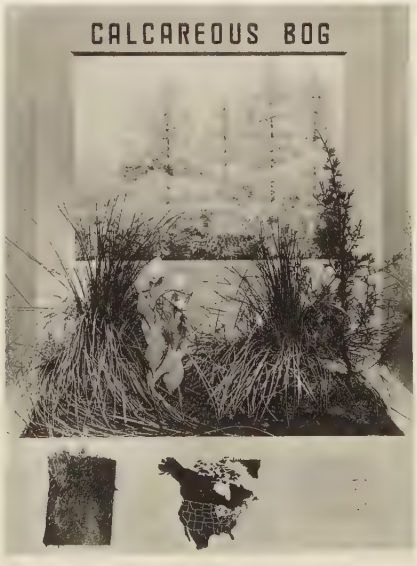

Fig. 7

Fig. 8

Fig. 9

Only the giant rookeries of colonial birds were capable of making a forceful impression against the panoramic perspectives of the new scale of display. Sometimes the birds have even become hard to find, and there are cases in which the most spectacular and interesting species are shown only in two-dimensional paintings, but not by specimens in the foreground. From their origin as exhibits of intimate life history, the bird habitat groups had evolved into geographic "landscapes with birds" of a rather different meaning and significance. In the intimate habitat group, and in mammals with landscapes, we try to present the natural habitat of a given species. In landscapes with birds we attempt to show the natural fauna of a given habitat. By comparison with the composite faunistic habitat,

Fig. 7. Semi-habitat presentations of enlarged microcosms combine educational value with dramatic impact. Life of the Forest Floor, Hall of North American Forests, The American Museum of Natural History.

Fig. 8. Early intimate bird habitat. Western Grebe. The American Museum of Natural History.

Fig. 9. Mammals with natural landscape. Black Rhinoceros Group, Akeley African Hall, The American Museum of Natural History.

Fig. 10. Simple faunistic habitat group from the Nile River. Akeley African Hall, The American Museum of Natural History.

Fig. 10

which will form the subject of a later section of this article, a landscape with birds may be described as a simple faunistic habitat exhibit, inasmuch as it portrays only a single actual location in nature, usually representative of only a single type of environment. Another example of a simple faunistic habitat group is shown in Figure 10.

The trend just described by three stages of evolution in one of the main lines of descent of the habitat group was accompanied by an interesting reorientation of artistic emphasis upon the various elements that make up the whole of each display. In the intimate habitat groups of bird life, the birds themselves are entirely dominant, along with other three-dimensional material in the foreground. The two-dimensional background painting generally plays a quite subordinate role in the total picture. In mammals with landscapes, the work of the background artist commonly attains the status of an equal co-feature of the entire exhibit. And in the final stage of this evolutionary sequence, represented by landscapes with birds, the background painting has achieved complete dominance, with specimens and foreground accessories distinctly secondary in visual importance.

The habitat groups, as we usually find them, are designed for maximum exposure through a glass front as high and as wide as space will permit, with the aim of creating an immediate impression at first glance across the distances of a hall. This is very effective, but it is also costly and physically restrictive in certain respects. It does not permit any major obstacles in the near foreground, even where nature would normally pro-

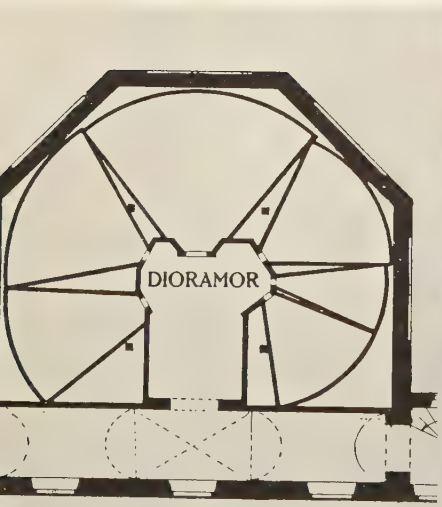

Fig. 12A

Fig. 12B

Fig. 11

vide them. A forest interior is, in most cases, shown as if seen from a small opening in the woods. It is costly, because it permits the visitor to get very close both to foreground material and to the forward-extending sides of the curved background painting. It also permits him to see the ceiling within the exhibit. This opportunity for close and broad inspection by the public creates an enormous demand for minute and meticulous detail in artistic execution.

An interesting application of the very opposite principle may be seen in Naturhistoriska Muséet, Göteborg. The habitats radiate from a small,

Fig. 12C

Fig. 11. Landscape with birds, a simple faunistic habitat. The American Museum of Natural History.

Fig. 12. Habitat group arrangement in Naturhistoriska Muséet, Göteborg, Sweden. A. Ground plan, visitors' alcove in center. B. Visitors viewing exhibits. C. One of the habitat groups.

Fig. 13

Fig. 14

almost completely dark, central hall into which the visitors enter. Each exhibit is viewed through a narrow opening, reminiscent of the shooting slots of old castles. As a result, the forward parts of the ground, ceiling, and side walls of the display do not come into view at all, although a bird in flight, a squirrel on a limb, or an insect on a flower may be brought quite close to the spectator at the window, whenever desired. Excellent illusions are obtained, without the exacting demands upon foreground minutiae created by a wide glass front.

A most serious difficulty of the habitat type of exhibit is its space requirements. In a landscape with birds many species can be shown, or hidden, but relatively little can be told about each. In the intimate habitat group a lot can be revealed, but only about a single or a very few species in each. Various modifications of the habitat method have been introduced in an effort to cover a greater diversity of animal life within reasonable limitations of space and funds. In the special situation habitat groups the

Fig. 13. A special situation habitat group. African Water-Hole. The American Museum of Natural History.

Fig. 14. Life-sized habitat group of wapiti in the Rocky Mountains. Hall of North American Mammals, The American Museum of Natural History.

Fig. 15. Miniature diorama of Rocky Mountains with wapiti. The Berkshire Museum, Pittsfield, Massachusetts.

Fig. 15

Fig. 16A *Fig. 16B*

museum takes advantage of the fact that common needs or inclinations may cause a wide variety of species to collect in very little space around some particular temporary or permanent feature of the environment. Ship follower and African water-hole exhibits are good examples. But again the question may be raised of whether a water-hole arrangement, apart from its stimulating beauty and vivacity, adds much to the display of the specimens beyond the information that all animals get thirsty in a dry country. Scavengers around a carcass are perhaps a little more informative, although less appealing.

Another solution for the space problems of the habitat group is offered by the miniature diorama. It is natural that these small-scale models should have found their first and greatest usefulness in the presentation of the big mammals that are the largest animals the museum has to contend with in its exhibition program. Although the miniature diorama fails to reveal many things that only a life-sized habitat group can show, it is not entirely without merits of its own quite apart from its economy of space and of funds. In the miniature diorama one can choose whatever scale is best suited to communicate a direct sense of the space relationships between the animal and the dimensions of the milieu in which it

roams. But no museum can afford to give anything less than a dominant role to a large mammal presented on a full scale in a regular habitat group. A comparison between Figures 14 and 15 will show both the over-all superiority of the life-sized habitat group and the special advantages of proportions and perspective that can be realized in a well-executed miniature diorama.

The composite faunistic habitat exhibit seems to have developed quite independently, and to have sprung into existence full grown, with the opening of Biologiska Muséet in Stockholm in 1893. The composite faunistic exhibits differ from the simple faunistic habitat groups by the fact that they do not attempt to present a panoramic vista of any particular landscape. Rather can they be described as a composite of numerous intimate habitat groups of a great variety of species and environments, synthetically assembled to form a continuous display, after the manner

continued on page 122

Fig. 16. Biologiska Muséet in Stockholm. A. View from lower level of observation tower. B. View of observation tower from exhibit.

Fig. 17. East African Hall in the Musée du Duc d'Orléans, Muséum National d'Histoire Naturelle, Paris. Ground plan with details of four small areas to give impression of size.

in which a landscape architect plans a botanical "nature" garden. As in the intimate habitat group, background painting is comparatively subordinate and may even be non-existent.

In Biologiska Muséet an exhibit of approximately sixty by one hundred and ten feet surrounds a central observation tower in which the visitor can observe the display from two levels. The scene shifts as the eye follows the compass around, and all the most important land vertebrates of the entire Swedish fauna pass in review in reproductions of natural surroundings. A shelf attached to the observation tower between its two floors presents many of the smaller highland forms for closer foreground view from the upper level. Considering its size and quality, and the time at which it was created, Biologiska Muséet must be considered an impressive historical achievement, exciting to visit even today.

Other illustrations of composite faunistic habitat groups on the grand scale are found in the Musée du Duc d'Orléans in Paris. Figure 17 tries to convey an idea of the magnificent concept of these life-sized dioramas by

Fig. 18. Visitor in an alcove that extends into the exhibit. Olympic Forest, Hall of North American Forests, The American Museum of Natural History.

Fig. 19. Naturhistorisches Museum, Bern, Switzerland. A. Heron and pigeon exhibits. B. General view of continuous habitat display. Pigeons on the right in A can be seen in the rear through the heron exhibit at the left.

Fig. 19A

Fig. 18

Fig. 19B

the example of the East African exhibit, which fills a space nearly ninety by a hundred and eighty feet. A photograph of the entire exhibit is, unfortunately, not available, but the floor plan combined with the pictures of details in small sections may serve to demonstrate the character and dimensions of this display.

While the passing years are taking their toll of the great exhibits in Stockholm and Paris, the very exciting possibilities of a modern use of the composite faunistic display have generally been sadly neglected in our museums. It is to be hoped that the daring examples now available to us will not be retired but restored or replaced in the fullness of time.

An interesting feature of some of the major faunistic habitat arrangements is that they were the first, and remain, so far as I know, even to this day the only, displays of this type in which the vistor himself enters into the center of the exhibit to look out upon images of nature on all sides, instead of looking in upon the outdoors through a flat surface of glass. A not insignificant improvement upon this undesirable feeling of looking in upon nature from the outside may be achieved by permitting a slight incursion into the exhibit through the use of several panes of glass arranged to form an alcove for the visitor. But the ideal solution is still to be sought by placing the visitor entirely inside the exhibit by some future modification of the bold efforts of Biologiska Muséet and the Musée du Duc d'Orléans.

An interesting, ingenious, and effective modern hybrid between the composite faunistic exhibit and the intimate habitat group has been introduced in the Naturhistorisches Museum in Bern, Switzerland. Long and, for their length, very shallow exhibits have been set up as single units, each extending the length of a wall. There are no interior partitions. The background treatment is continuous. Foliage and other foreground accessories join and intermingle in uninterrupted sequence. But, instead of being fully exposed through a continuous glass front, each exhibit is concealed from broad, general view behind a curtain wall, with a series of glass openings of modest size, each framing an intimate glimpse of a member of the general fauna in a natural setting. Although the spectator can see only small sections at a time, he is constantly and pleasantly aware of the continuity and spaciousness of the greater whole. The vague sense of confinement which the very dimensions of a small, separately enclosed habitat group tend to instill, regardless of the quality of execution, is notably lacking or reduced. In addition to being very economical, this arrangement of exhibits in open, interior continuity is both esthetically and educationally very successful.

The systematic pseudo-habitat is a lateral descendant of the habitat group that may trace its ancestry from several sources. It combines in a decorative, pseudo-natural setting more or less closely related species in-

Fig. 20

Fig. 21

habiting different geographic regions and therefore never found together in nature. The setting can convey information only of the broadest general nature, such as whether we are dealing with birds of the trees and forests, or birds of the grasslands or seashore. But its esthetic value may add greatly to the attraction of an otherwise purely systematic exhibit. When recently re-introduced in The American Museum of Natural History it was explicitly proposed as a three-dimensional modern version of the beautiful color plates of nineteenth century works on nature, in which many different species were often similarly assembled in an entirely artificial way. The systematic pseudo-habitat can, obviously, also be viewed as a new edition of the original, decorative curio cabinet, or as a simplified derivative of the composite faunistic habitat.

The presentation of some significant feature of the environment in a pseudo-habitat display may take a very abstract or highly conventionalized form, without loss of meaning, as in the very attractive new installation of hummingbirds in the British Museum shown in Figure 21.

The special situation habitats mentioned above are, in a sense, ecological, in that they take advantage of some particular element of ecology to achieve the concentration of species in space that is desired. They are therefore closely related to the last unit in our series, the ecological habitat.

Fig. 20. A systematic pseudo-habitat. Birds of paradise. The American Museum of Natural History.

Fig. 21. A systematic pseudo-habitat. Hummingbirds. British Museum (Natural History).

But before dealing with the ecological habitat group, which also has direct affinities to landscapes with animals as well as faunistic habitats, it may be of interest to mention an important change in technique of presentation that makes its appearance at this point.

In all the types of habitat exhibits discussed in the preceding, there is a sharp distinction and division between background and foreground treatment. The foreground includes everything in front of the background painting, such as snow and ice, rocks, plant life, and zoological specimens. Everything in the foreground is normally on full natural scale, and in three dimensions, although some successful faking with two-dimensional material in the posterior foreground can be done. The application of perspective does not begin until we reach the entirely two-dimensional background, and is then rendered as "natural" perspective. Our artists have become masters at concealing the discrepancy so that it will not be noticed by our visitors.

In the ecological habitat group we wish to deal not merely with a very temporary gathering of animals in a special situation, but with their typical

Fig. 22. Ecological habitat group. From seashore to meadow. Peabody Museum of Natural History, Yale University.

Fig. 23. Ecological habitat group. Redwood forest, Hall of North American Forests, The American Museum of Natural History. A. Detail. B. Full view.

Fig. 22

Fig. 23A

Fig. 23B

life within the normal range of their environment. We do not have the advantage of tremendous concentration. In addition, we can best tell our story by direct comparison between different types of environment within the same exhibit, as, for instance, by showing the transition from sandy seashore to salt marsh to fresh or dry meadowland. We need to create a convincing illusion of much greater space than we actually have, also in the foreground.

One of the first attempts to achieve such an effect, and a very successful one, has been carried out in the Peabody Museum at Yale University by the use of a very forced perspective in the background painting, which carried the illusion forward to the foreground without foreshortening of the three-dimensional material. In this case it was an illusion of horizontal width that was desired to span the distance from seashore to farmland.

In The American Museum of Natural History we have just completed an exhibit in which an illusion of height was required to create a picture of natural conditions in a giant redwood forest. For this purpose a forced perspective has been applied all the way from the opening through which the visitor sees the display, through the three-dimensional material of the "foreground," to the two-dimensional background painting. Three-dimensional models of tree trunks, ground-cover ferns, and human forms have been introduced on a diminishing scale towards the rear by rigid calculations of perspective.

With forced perspective in a two-dimensional background and the application to the three-dimensional foreground of principles of perspective, derived from two-dimensional traditions of rendering, already accomplished, there remains the challenge of achieving final and complete integration by introducing a foreshortened, but actual third dimension in the background itself. Certain quite effective devices used in commercial advertising offer promise that even this may soon be achieved.

Dimensions, Backgrounds, and Uses of Habitat Groups

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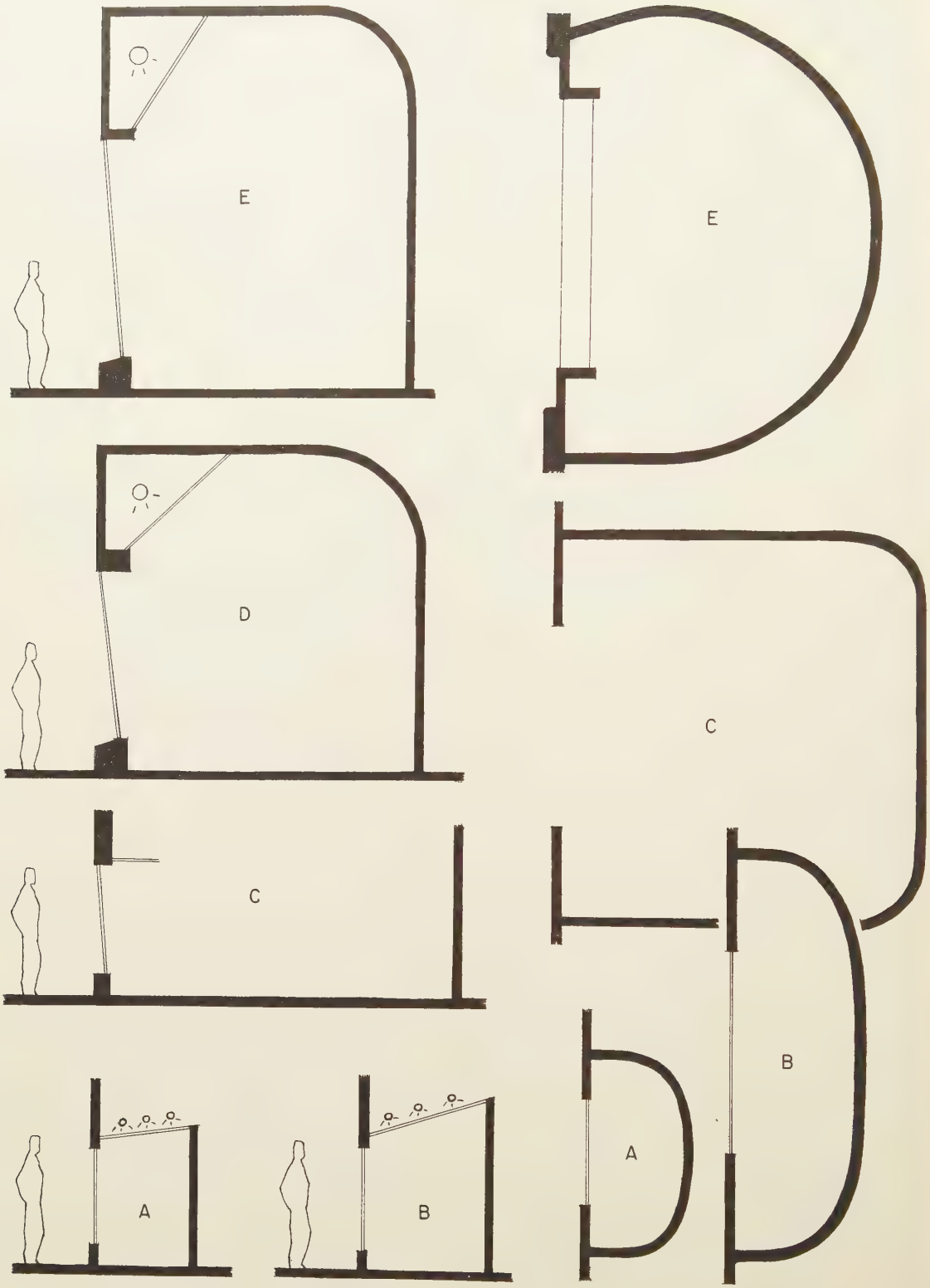
Comparison of habitat groups in different countries and different museums reveals no evidence of any unifying concept of ideal geometric forms and arrangements for exhibits of this kind. On the contrary, the variety of their proportions in the three dimensions and of their placement in architectural museum space is such that it does, at first, seem difficult to find any logical order in the diversity other than the logic of the simplest kinds of expediency coupled with the historical element of progressive improvement in the arts of preparation and display. But it soon becomes obvious that neither age nor institutional expediency will suffice to explain the range of differences that are there to be seen. As one continues to seek a rational explanation or interpretation it gradually becomes apparent that two divergent lines of evolution have been involved in the development of the habitat group and its adaptation to museum space.

In retrospect it now seems quite evident that the creators of the earliest habitat groups worked in the spirit of representational artists and not as practitioners of the arts of illusion. Whether or not they themselves were conciously aware of the distinction—and they probably were not—the fine exhibits they left behind give ample proof that complete visual deception was not their aim. Any doubts we may have on this point are dispelled when we sometimes find the full name of the artist boldly spelled out in letters one inch and a half tall, and of conspicuously contrasting color, painted as his signature on the background itself, with the year the work was accomplished. No artist of integrity, seeing illusion as his aim and responsibility, could allow himself, nor would he be allowed, to defeat his purpose for the gratification even of such a most natural desire for conspicuous identification with his work. The early habitat groups were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obviously looked upon as illustrations, rather than imitations or reproductions of nature. The artist's signature seemed quite as much in its place as it would be on an easel painting.

Under this concept of the habitat groups the question of their proportions and arrangement did not involve basic principles of display. An illustration can be painted to fit the size and shape of any canvas and the space of any page. A good example may be seen in the Hall of North American Birds of The American Museum of Natural History, which was perhaps the first complete hall devoted entirely to the habitat method of display. The proportions of the groups were not a consideration and do not show any general pattern. The depths were determined, with only slight variations, by the width of the space available between the false wall containing all the glass fronts and the structural wall behind the exhibits. The widths were governed by the needs of the contents to be shown, an eagle in its lonely eyrie needing only nine feet of elbow room, while a group of pelicans or a colony of lake shore birds require a spread of about eighteen feet each. The result is the range of dimensions indicated in Figure 1A, with the ratio between depth and width varying from 1:2 to 1:3.5.

But when we turn our attention from the horizontal to the vertical dimensions of these early habitat groups, we notice a feature of great uniformity representing the most primitive solution for one of the greatest dilemmas facing the designers of habitat groups: to have or not to have a sky. All the glass openings started very low near the floor and ended at, or slightly below adult eye level, forcing the entire direction of view downward and making it impossible or unnatural to look for a sky above, as shown in Figures 1A and 2. This made any painting of the ceiling quite unnecessary, and each habitat group was simply covered by a large glass plate through which illumination was admitted. It also disposed of the problems of perspective created by the need to bend the upper part of the background forward in the shape of a dome, when the visitors are permitted an upward view towards the sky.

For each single exhibit this method of avoiding the difficulties of the skies is perfectly acceptable. But, when the visitor is forced to cast his eyes down into one exhibit after another it tends to build up a depressing effect that may be quite strongly felt by some, although less disturbing

Fig. 1. Horizontal and vertical outlines of habitat groups. A and B. Early groups in the Hall of North American Birds of The American Museum of Natural History. C. Lion group in the Zoologisk Museum in Copenhagen. D. Characteristic profile of modern habitat groups in the United States. E. Alaska Brown Bear group in The American Museum of Natural History.

to others. Probably this emotional need to lift the eyes from the ground is the conscious or subconscious reason why exposure through windows ending below eye level has been universally abandoned as a general style, and is used only when the exhibits serve some special purpose, or when small exhibits are tiered below others at or above eye level in a desperate and discouraging effort to gain space or to show more than can be comfortably seen. But, although the modern habitat group does not force the eyes down, there is still a question of how far it permits an upward look into the skies.

Actually there were some museums that chose to disregard the dilemma of the sky even before, or without, the introduction of the curved half-dome above the diorama. The American mammal groups of the California Academy of Sciences were built on the same general principles as those illustrated in Figure 1A, but installed behind an opening rising eleven and a half feet above the floor, so that a visitor standing reasonably close has a very good view of the uncamouflaged glass lid of the display. The very fine impression created by these exhibits despite their brusque dismissal of a technicality may well cause one to wonder if the problem of the upward view may not have been somewhat overrated. But there can be no doubt that the urge to keep out of sight anything that could not be disguised as part of the natural panorama largely dictated the vertical dimensions of the early habitat groups in most museums.

As the habitat groups continued to evolve from their origins as three-dimensional illustrations, two different and in many ways opposed trends soon made their appearance. Several factors were involved, and it is impossible to tell which were given the first consideration. In museums that were partial to the open floor plan, with the exhibits surrounding a large and unencumbered central area, it was natural to seek a style of presentation that would have an effective impact across a considerable distance. Since one cannot increase the size or enhance the coloring of the animals and natural objects in the foreground, this distant effect depended heavily upon the quality of the background painting. Exposure to a distant view also made it desirable to increase the height of the open glass fronts as much as possible to lessen the feeling of confinement under low ceilings which the perspective of an entire wall would tend to accen-

Fig. 2. View of Hall of North American Birds in The American Museum of Natural History after modernization. Note that some exhibits are even lower than the one observed by the visitor.

Fig. 3. Bear exhibit in the Boston Museum of Science, typical of modern habitat groups in the United States.

Fig. 2

tuate. Increased height further reënforces the emphasis upon background painting. It also affects the permissible depth of the exhibit.

The taller the opening, the more narrowly confined to the front are the sources of illumination inside the exhibit, since they must be kept away from the upward angle of view. But, if a background is not to seem dim and unexciting even across a moderately wide hall, it must reflect a great deal of light, at the same time as it is not permissible to step up the illumination to the point where it becomes objectionable in the closer view. In the design of tall habitat groups for open halls it therefore becomes essential to hold the depth between glass front and background to

Fig. 3

a minimum. If at all practical the depth should be less than that allowed in exhibits with lower openings. It is interesting to note that the depth of the Alaska Brown Bear group in The American Museum of Natural History, with an opening that rises to twelve feet from the floor, is actually about three and a half feet less than the depth of the African Lion group in Copenhagen, with an opening that ends below six and a half feet from the floor, in spite of the fact that the bear group is about two feet wider than the lion exhibit.

As the background painting becomes more dominant and costly, it also acquires a higher order of meaningful contents. In the original three-dimensional illustrations the background was merely a limited extension of the foreground, giving additional details of the general type of environment inhabited by the species, such as northern woods, tropical rain forests, tundra, desert, lake shore, and so on. In habitat groups depicting scenes cloistered in deep vegetation, the ecological unity of background and foreground is, of necessity, still maintained. But in tall habitat groups drawing upon more open country for their subjects, more spectacular and more remote features are added to make the background effective at a distance. Often a marginal location, as in the edge or on a prominence in a forest, is selected for the illustration of a typically enclosed ecological niche, for the simple purpose of permitting a more distant and dramatic background view than the interior of the forest would allow. Bold geological formations and famous mountains or mountain ranges are shown. In a representation of low country the focus is not upon a near scene placed in a slight depression to confine and concentrate the view. On the contrary, the emphasis is upon the broad panorama of plains rolling to a distant horizon. For this, also, we may find a reason in the principles of perspective and psychology, although the practice probably grew from experience rather than theoretical considerations. Obviously the sight of a majestic mountaintop in the far background, or of the flat horizon of the plains, will retain its impact far better across another fifty feet of distance than would a boulder near at hand, filling the same area of the view.

With the use of these larger and bolder features of the broader environment, the background ceases to be a mere extension of the foreground. It is no longer part of the ecological niche of the species that are the primary subjects of the exhibit and may, indeed, have nothing at all to do with conditions of life in the foreground. Sometimes the background may even seem to function primarily as a digressive reminder that environmental circumstances entirely different from those of the foreground are not always very far away, as when the snows of Kilimanjaro are shown in the background of a display of life on the hot African plains. Through practical experience with the needs of tall exhibits that must be effective in open halls, the background has been emancipated from the

Fig. 4. Alaska Brown Bear group in The American Museum of Natural History.

details of the foreground to become a semi-independent geographic or geological tableau. This, in turn, has given rise to the concept of the multiple purpose habitat group.

The proponents of the idea that habitat groups should be deliberately selected and designed to serve the educational needs of several different disciplines can rightly point to the fact that their theory has already been put into successful practice in several museums featuring tall exhibits with emphasis upon the background painting. The habitat halls of these museums have already become vehicles for the study of geography, geology, and botany, as well as, and sometimes even with the neglect of, the mammals and birds that are usually the titular stars of the show.

The difference between backgrounds that merely extend the story told in the foreground and backgrounds primarily concerned with conveying a separate message of their own is sometimes quite obvious but can at other times be very subtle. It is true, of course, that the Grand Canyon of the Colorado is located within the wide domain of the American mountain lion. But the Canyon itself is unique and can in no sense whatever be described as a typical feature of lion country. Nor can it be said

continued on page 209

Fig. 5

Fig. 6

Fig. 7

Fig. 5. Mountain lion with Grand Canyon of the Colorado in background. The American Museum of Natural History.

Fig. 6. Coyote with El Capitan in background. The American Museum of Natural History.

Fig. 7. Osborn caribou in Telegraph Creek region of British Columbia. The American Museum of Natural History.

Fig. 8. Black bear in Big Cypress Swamp in Florida. The American Museum of Natural History.

Fig. 8

Fig. 9

Fig. 10

that the existence of the lion is naturally dependent upon the presence of the Canyon. The exhibit tells at least two almost unrelated stories, and tells them both very well. The same thing can be said about the relationship, or lack of relationship, between the wide range of the coyote and the spectacular mountain formations of Yosemite National Park. The coyote also roams the rolling prairies and is equally at home on the flat coastal plains of Texas.

On the other hand, even the distant ranges behind the Osborn caribou are of a kind with the foreground, serving to enlarge our understanding of the bleak and uniform environment of this species, just as the background of the black bear of Florida completes the picture of a cypress swamp for which space permits only a fragmentary representation by three-dimensional materials in the foreground. Other striking examples of background that supplement and extend the foreground even to the horizon are seen in the Gobi Desert, and the South American lagoon and pampas, habitat groups of bird life.

The relationship between the physical dimensions of the diorama and the evolving dichotomy of background and foreground is, of course, not always so simple as suggested in the preceding observations, nor is it without exceptions or deviations. Special circumstances may invite special solutions. In an exhibit of small mammals or birds habitually spending their lives in the cover of low-growing vegetation, the function of the background would actually be quite insignificant, unless it is given a separate task to perform. It is therefore entirely logical, for example, that a very fine but also fairly small habitat group of quail in the Dallas Museum of Natural History should be dominated by a background depicting the striking formations of the Chios Mountains.

A very different variant may be seen in the impressive African water hole diorama of the California Academy of Sciences, which combines many distinctive and interesting features, partly shown in Figure 11. The top of the opening of this display is nineteen feet above the floor. The exhibit nevertheless avoids the complications of multiple contents by a definite de-emphasis of the background, instead of the increased emphasis usually accompanying such a height of exposure. In the functional sense of visual impact upon the spectator, this de-emphasis reduces the background to a mere extension of the foreground, although the background painting actually does show mountains that might well have become an independent, though minor second theme of the display, if their forms had

Fig. 9. Birds of Gobi Desert. The American Museum of Natural History.

Fig. 10. Birds of South American pampas and lagoon. The American Museum of Natural History.

Fig. 11

Fig. 12

been more conspicuously rendered. It is interesting to note that this underplaying of the background is associated with a depth of twenty-four feet, which is much greater than the interior distance from front to back at which the background can easily be given a prominent role under a dome that is closed above, with lights in front only. The lessons of this successful exhibit should be of value to all concerned with the problem of displaying large species requiring a lot of space in the foreground, and may help to provide a way out of the difficulties of some of the disproportionately high costs of large installations, about to be mentioned.

In spite of the great advantages of habitat groups of high exposure in open halls, this style of presentation is not without certain disadvantages that also leave something to be said for a different treatment of such displays. One disadvantage is, of course, the very great increase in cost. This involves both the indirect costs of space requirements, especially when the scheme of open halls is used, and the direct costs of creating the exhibit itself. Owing to its size, and the esthetic demands placed upon it, the background painting becomes the most expensive item of the exhibit and may even cost more than the entire rest of the display. To make the background effective, particularly at some distance, a high general level of illumination is used in all daytime habitat groups, which, in turn, precludes economic shortcuts in the preparation of foreground material.

Another disadvantage is the lack of focus and concentration upon a subject which becomes unavoidable when many different exhibits are simultaneously in view, and when each exhibit is in internal competition between several disciplines for the star role of the show. In the Colorado Piñon and Juniper group in the Hall of North American Forests, at The American Museum of Natural History, it might be difficult for a visitor not predetermined upon what he wants to study to decide whether to give his attention to the trees that are the theme of the entire hall or to the magnificent geological formation of the ship rock in the background. One might also note that, while habitat groups serving multiple purposes may be very helpful to classes and individuals who can repeat their visits for the separate pursuit of each of the subjects that are dealt with, such exhibits tend to be confusing to visitors who must try to take it all in during a single visit and are likely to end the day by having seen much but learned little on their trip.

Fig. 11. African water hole. The California Academy of Sciences, San Francisco. Over-all width of opening fifty-three feet, central glass pane twenty-nine feet wide.

Fig. 12. Foreground juniper and background ship rock. The American Museum of Natural History.

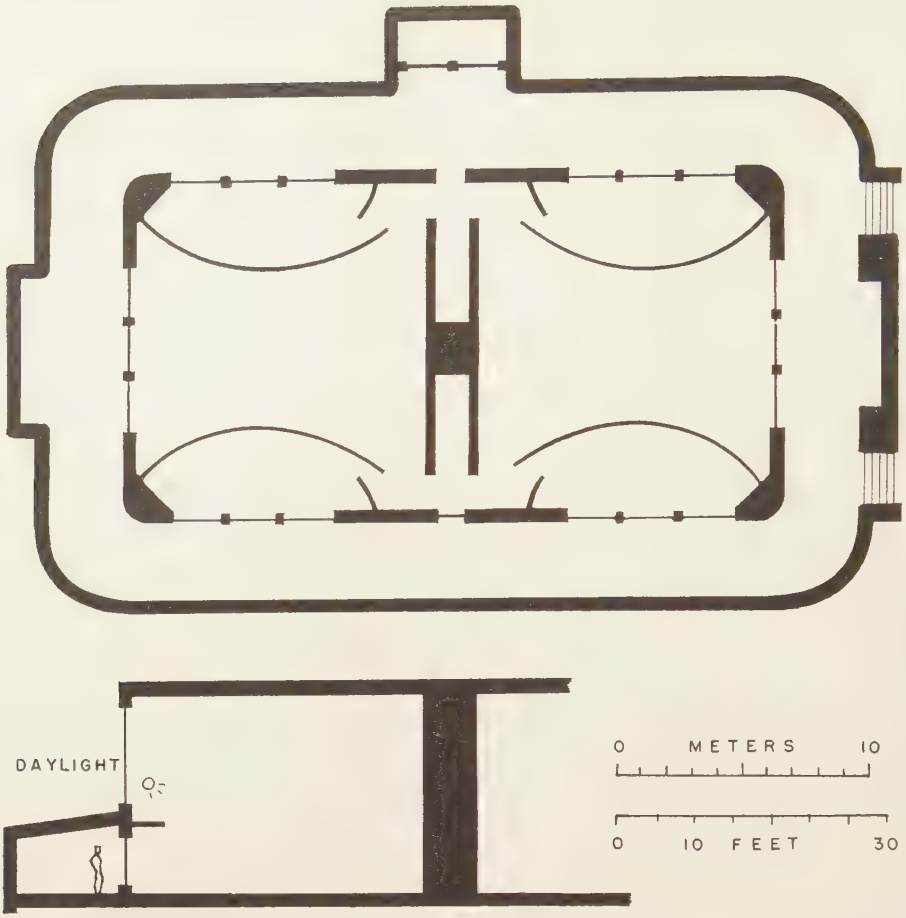

Fig. 13

The fact that many different habitat groups will actually be held in view simultaneously in the open hall arrangement, and therefore must put a strain upon the visitor's powers of attention, is shown by the need to fix the horizons of all exhibits in an open arrangement at exactly the same level, in order to avoid even more disturbing conflicts of competing impressions.

Apart from such very special exhibits as that of Biologiska Muséet in Stockholm[1] the multiple-purpose, high-exposure habitat groups have had the greatest development in the United States, and I believe one may be permitted to add that they have been particularly far advanced in The American Museum of Natural History.

In many European institutions, and perhaps most notably in various Scandinavian museums, the history of the habitat group has followed a different course. Instead of being arranged around an open central space in a large hall, the exhibits were generally placed in the relative intimacy

[1] See CURATOR, vol. II, no. 2, p. 119, figs. 16A, 16B.

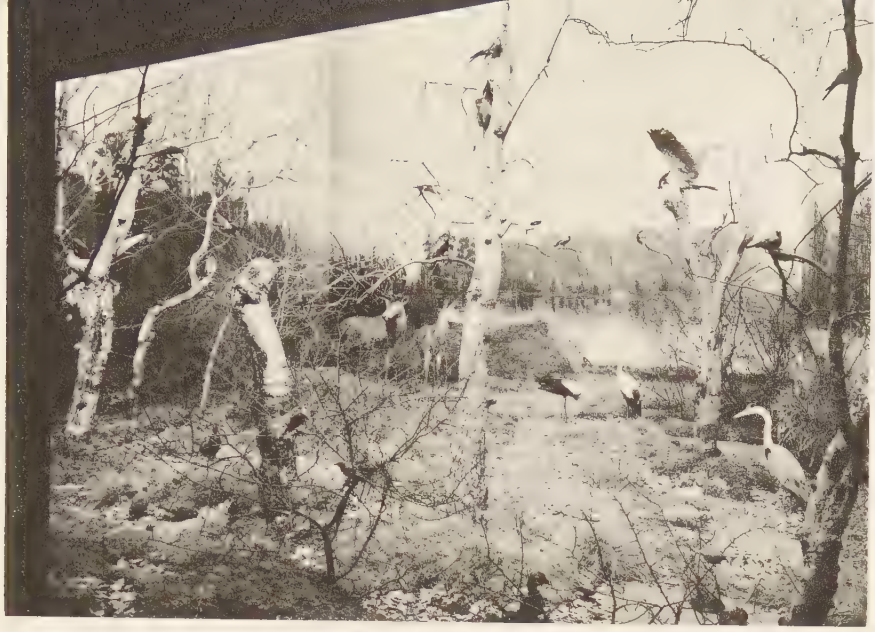

Fig. 14

Fig. 15

Fig. 13. Diagrammatic ground plan of Biologiska Museet in Uppsala, with profile of one of the two largest habitat groups, prepared from sketches supplied by Intendent Bengt Ekström.

Fig. 14. Normal visitor's view of one of the two largest exhibits in Biologiska Museet in Uppsala.

Fig. 15. The second of the two largest exhibits in Biologiska Museet in Uppsala, photographed to reveal interior shape, dimensions, and structure.

Fig. 16

Fig. 17

of corridor-like areas, or in lateral alcoves of quite limited width. Even when a large hall would seem to have been architecturally available, one may find it reduced to an ambulatory around a central "island" of habitat groups placed back to back. A particularly interesting example may be seen in Biologiska Museet in Uppsala, as shown by the floor plan given in Figure 13. It will be noticed that both of the entrances to the hall face blank walls, so that the exhibits can be seen only after the visitor has entered the confines of the ambulatory, and also that only one habitat group at a time can be held clearly in view. This arrangement avoids the diffusion of intent and attention that may be caused by having many exhibits present themselves simultaneously within the field of vision of the visitor. It permits no clear impression and sometimes scarcely even an awareness of the next exhibit until one stands before it. Needless to say, this greatly facilitates concentration upon the contents of each diorama.

The arrangement used in Uppsala results in some challenging shapes and dimensions, particularly in the large exhibits at the two ends. These have a depth from front to back of about thirty-nine feet, and a maximum width of about thirty-three. The interior ceiling height is about twenty-six feet, but the glass opening ends only seven feet above the floor, with a wide vizor inside. That these rather extreme forms can be effectively used is shown in Figure 14. In Figure 15 one should notice the proportions of bear and bull moose both to the depth and to the height of the

Fig. 16. Visitor observing spotted seal exhibit in Zoologisk Museum in Copenhagen. Compare with Figures 2 to 4.

Fig. 17. Lion group in Zoologisk Museum in Copenhagen. Compare with Figure 1C, and note the effective use of depth by the arrangement of the animals and of their large prey.

interior and should relate the shape revealed on the right to the floor plan shown in Figure 13.

The lack of a wide area for the movement of visitors in front of the groups also precludes the distant view and thereby eliminates the need for tall openings with all their attendant problems of cost, illumination, and background motif. Exhibits designed to be seen only at close range can well stand a considerably greater distance between the opening and the back of the case, with significant gains for the presentation of three-dimensional foreground material.

Habitat groups consistently designed for intimate arrangement are therefore characterized by apertures that extend high enough to avoid forcing the eyes downward, but not much higher; by relatively great depth, which may sometimes equal or exceed the width;[2] by a generally lower key of illumination that permits some economies in the artistry of presentation, without being in any way inadequate for the near view; by emphasis upon taxidermy and foreground treatment; and by a retention of the background painting more or less within the framework of the particular ecological niche that is the theme of the whole assembly.

Probably the finest example of this treatment of the habitat group carried to its logical conclusion may be seen in the lion exhibit fairly recently installed in the Zoological Museum of the University of Copenhagen. Here the opening ends well above eye level, but well below six and a half feet from the floor. At the top of the glass, an opaque vizor more than two feet wide extends horizontally into the case, cutting off the upward view without forcing the eyes down. The problems of the sky are eliminated as completely as they were by the low apertures of the earliest habitat groups, but without the undesirable side effects. No artistic treatment of the ceiling is required, and illumination can be extended far into the case without exposure of its sources and yet without any undesirable increase in the general level of light intensity. Figure 17 bears testimony to the excellent quality of the image created by a fine exhibit prepared and presented in this manner, and shows that there are more ways than one of meeting the problems of the habitat group, according to architectural and economic circumstances, and educational purpose.

In conclusion it must be admitted that the rationalizations used in this and other articles to explain the history of museum methods and philosophy are, of course, in the nature of interpretations by hindsight, which might possibly, at times, seem as surprising to the movers of museum history as our theories of evolution would be to the evolving species. But this, in itself, is not an argument against the validity of the theories.

[2] Even without taking into account such a special arrangement as that used in Gothenburg (see Parr in CURATOR, vol. II, no. 2, p. 114, figs. 12A–C).

The Skeletons in the Museum

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THE AMERICAN MUSEUM OF NATURAL HISTORY

Skeletons were among the first objects of museum enthusiasm and curiosity. With a slight air of mystery, they seemed able to tell more about the beast than its mere pelt, pulled over a manikin of dubious realism and accuracy, ever could. Through the study of comparative anatomy pursued by Cuvier and his followers, the skeletons became an inexhaustible source of inspiration for creative scientific imagination. With their natural durability increased by fossilization, they became our main clues to the life of the past. Against the background of an early training in zoology and comparative anatomy, the writer must confess that such a splendid display of skeletons as that in the Galerie d'Anatomie Comparée at the National Museum in Paris, or the excellent teaching collection of the University of Lund in Sweden, have a meaning and an appeal that the finest examples of the taxidermist's art can scarcely equal. In a museum one may also sometimes, and actually not too rarely, see an alert child spend more time in fascination before a skeleton than he gives to a habitat group or some other type of externally complete exhibit. Indeed it is probably the very incompleteness of the skeleton that invites and challenges the mind of the child to complete the picture in its own way in an inner vision.

That an element of morbidity may also, at times, help to arouse public interest in skeletons, particularly the human skeleton, goes without saying. And it is probably to this element that we must credit the attraction

continued on page 296

Fig. 1. A general view of Galerie d'Anatomie Comparée of the National Museum in Paris.

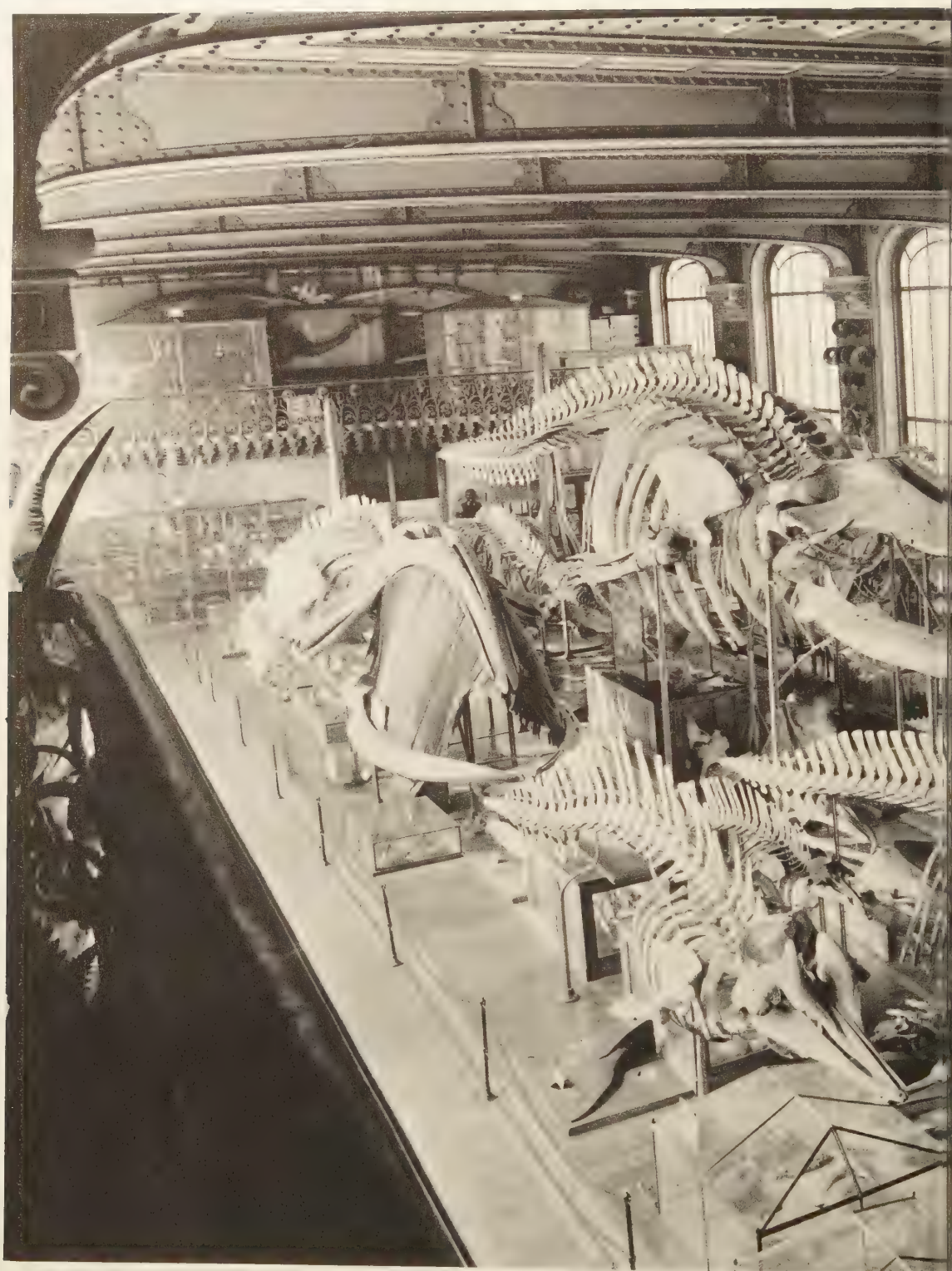


Fig. 1

of the miniature human skulls and skeletons which appear so frequently in the arts of many different and often quite unrelated cultures. Perhaps the most exquisite example shown in any museum is the half-size model of a complete human skeleton carved in ivory, which was presented to King Fredrik III of Denmark in the middle of the seventeenth century and is now exhibited in the National Museum in Copenhagen. This skeleton originally had a scythe in one hand and an hourglass in the other, so that it could serve the dual purposes of a *memento mori* and an anatomical model at one and the same time.

There can be no doubt, however, that skeletons as museum exhibits have suffered a great loss in prestige with the general public. Nevertheless, skeletons still have a lot to teach, and the problem of how to display them to their own and the public's best advantage is one of general interest to all natural history museums.

Sporadic attempts to restore the skeletons to their erstwhile popularity have actually been going on for some time in widely scattered institutions. It may be useful and interesting to review the methods that have been tried and examine their rationale.

It must be taken as a guiding principle of exhibition that an object or a display in order to be effective must also be attractive, unless it possesses an ugliness so extreme as to provide a fascination of its own, as, for instance, in the case of certain ethnographic and archeological materials related to superstitious and cruel religious practices. The witch and the beauty draw our eyes, while homeliness walks unseen. Form and color are the components of visual beauty or ugliness. Of these, form seems to have a relatively independent effect. We will often admire a form but have difficulties in finding the best color for it. The process is almost never reversed.

The value of color seems strictly dependent upon its objective association with form and the subjective associations of the form and color combination with our ideas and memories. The lipstick that makes the mouth more tantalizing looks repulsive on milady's teeth. This is no idle digression. It has a real bearing upon our problem of the skeletons.

Although he has not had an opportunity to subject the idea to experimental tests, the author is firm in his conviction that most people respond quite differently to the same colors in fossil and in "living" skeletons. It seems natural to describe the deep brown color of some fossil bones in approving terms as a rich, dark walnut. Similar hues on the skeleton of a recently deceased animal seem only the discoloration of decay and poor

Fig. 2. From Zoologiska Museet in the University of Lund, Sweden.

Fig. 2

Fig. 3

preservation. We see one in relation to rocks and fine materials, the other in relation to our concepts of cleanliness and health among living things. This leads to the conclusion that the mineral colors of fossilization can, and must, be accepted as they are. They cannot all be equally pleasing, but none is strongly displeasing by its associations, and all have real recognition values. But this is not true of the skeletons obtained from the carcasses of living species.

One of the first things to consider in trying to improve the appearance of recent skeletons on display is therefore their color. Modern methods of preparation generally result in a relatively uniform off-white color. But most large and old museums have valuable mounted specimens which it would be costly, and often destructive, to try to "send back to the cleaners."

When the writer first suggested painting such a skeleton more than twenty years ago, he encountered some very strong objections, ranging from a simple feeling that it would be wrong to alter the "natural" color of the bones, to a deeper, but ill-defined fear that the embellishment of the bones would be a first step on the road to intellectual dishonesty and damnation. But such objections are not too difficult to answer.

Color, as such, is not in any way involved in performing the biological functions of the skeleton. Secondly, the bones of a fair-sized, well-covered animal have no actual color in the total darkness of their natural location. Their color is entirely potential and dependent upon an unnatural exposure to light that can be reflected. Thirdly, if the "natural" color is to be understood as the color the bone would show if exposed to light while the tissues were still alive, this would not be the bone-white of the well-cleaned skeleton, but a shade of pink that would probably seem slightly disgusting to most people, and is not normally shown in any museum. As far as the truth of the functional skeleton is concerned, one color would therefore be as honest as any other. After a mottled old walrus skeleton in the Peabody Museum of Yale University had been painted a peach-blossom pink, the objections fell away, and it became a model for the painting of other discolored specimens.

Whether or not this was the first time a museum skeleton was painted for exhibition may not be entirely certain, but it was the first case known to the writer. It is discussed here at such length because it is a method that does so much for the appearance of an exhibit with such simple means that they are available to anybody at virtually no cost. The paint

Fig. 3. Ivory model of human skeleton of approximately half size, in National-museet in Copenhagen.

should be entirely opaque, should have a completely dull finish, and should be sprayed on. It is important to remember not to paint any parts that are normally exposed to the exterior and therefore have a true and recognized natural color. This applies to the tusks, teeth, and horns of mammals. It is also true of claws and beaks, if these remain attached to the skeleton. To paint these normally visible parts would not aid but merely confuse the visitor and detract from the appearance of the exhibit.

It should also be pointed out that the painting of an old skeleton serves to reveal its form far more effectively than it was shown before. On a mottled skeleton shades of discoloration and shades of true light and shadows intermingle to the confusion of the observing eye, which may see forms that are not there and miss forms that are actually present, with nothing very clearly defined. On the painted skeleton every shade is a true shadow related only to the form of the bones, which thus stands out sharply and clearly, as shown in the "before and after" comparison of the same specimen in Figure 4.

Beyond the simple question of color lie the intricate problems of posture and of arrangement on display. Probably the grimmest and least appealing of all styles of presentation is the centuries-old tradition of hanging a human skeleton by a brass ring in the top of the skull, with limbs dangling like those of a bandit hanging by the neck. In museums this charming method was often extended to the skeletons of other anthropoids, but could, of course, not be applied to animals with a horizontal spine. For the overwhelming majority of vertebrate skeletons the classical museum pose has been the rigidly symmetric stance of soldiers on parade, with "eyes front," limbs side by side, feet evenly and firmly planted, and tail straight astern, if not dejectedly bending towards the ground. Endlessly repeated, these pathetic specimens can only create boredom if not outright disgust in a modern audience. If the system permits—and this is a very big "if," indeed—any class of objects with a sufficient variety of sizes can, of course, with taste and good luck be arranged in a pleasant pattern. The picture of a case of bird skeletons in the old tradition in the Smithsonian Institution, shown in Figure 5, may serve as an example. But the opportunities to achieve even such a mildly nice effect within the limitations of the system are actually quite rare, and Figure 5 also illustrates the rigid standardization of skeletal posture which was the universal practice in museums until fairly recent times. Obviously, it will take more than an inoffensive or even mildly pleasing disposition of the specimens to kindle an interest in the story of the skeletons among the museum visitors of today. The two most notable and successful efforts to liberate the skeletons from their traditional parade-ground posture have gone forward more or less simultaneously and independently in Basel, Switzerland, and in New York.

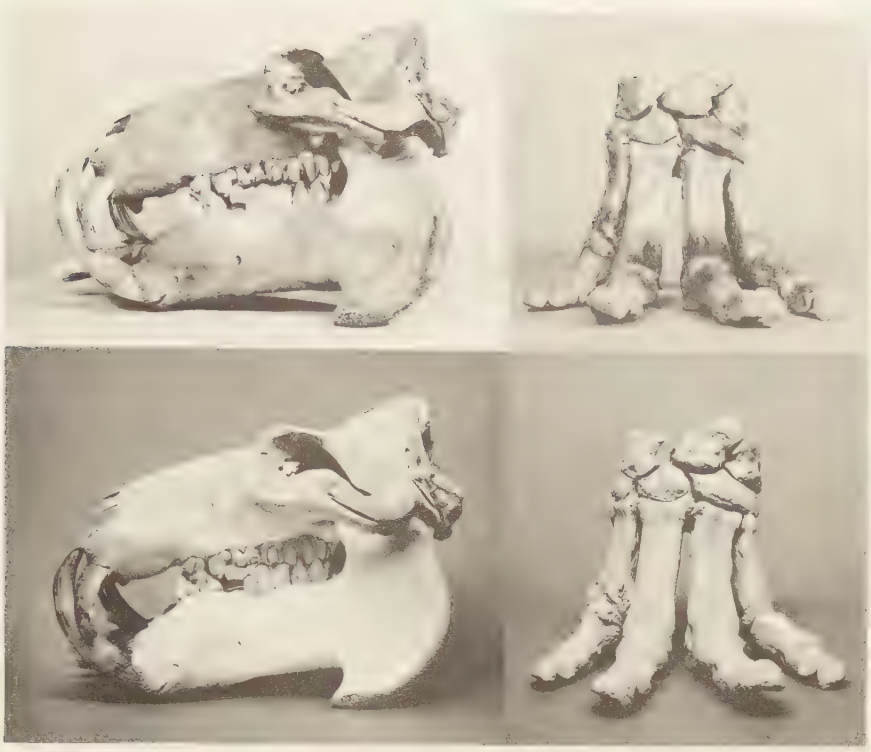


Fig. 4

In The American Museum of Natural History S. H. Chubb spent half a century producing a magnificent series of skeletons poised in action, representing dogs, horses and their relatives, and man. While these prepared specimens, individually, can scarcely be surpassed, institutional indifference has, so far, kept them from becoming vehicles of equally fine innovations in the art of display, leaving each in its separate rectangular glass case in a rather crowded confusion in left-over space.

It is difficult to show any general principles behind the traditional arrangements of skeletons in museum halls and exhibition cases. Usually it was only a matter of finding space among and between the other exhibits, with little thought given to over-all appearance. When things got too crowded, more space could be gained by hoisting the skeletons of aquatic forms such as whales and swordfish up overhead. The simple

Fig. 4. Poorly preserved and badly discolored skull and foot of hippopotamus (above). Same specimens after painting (below).

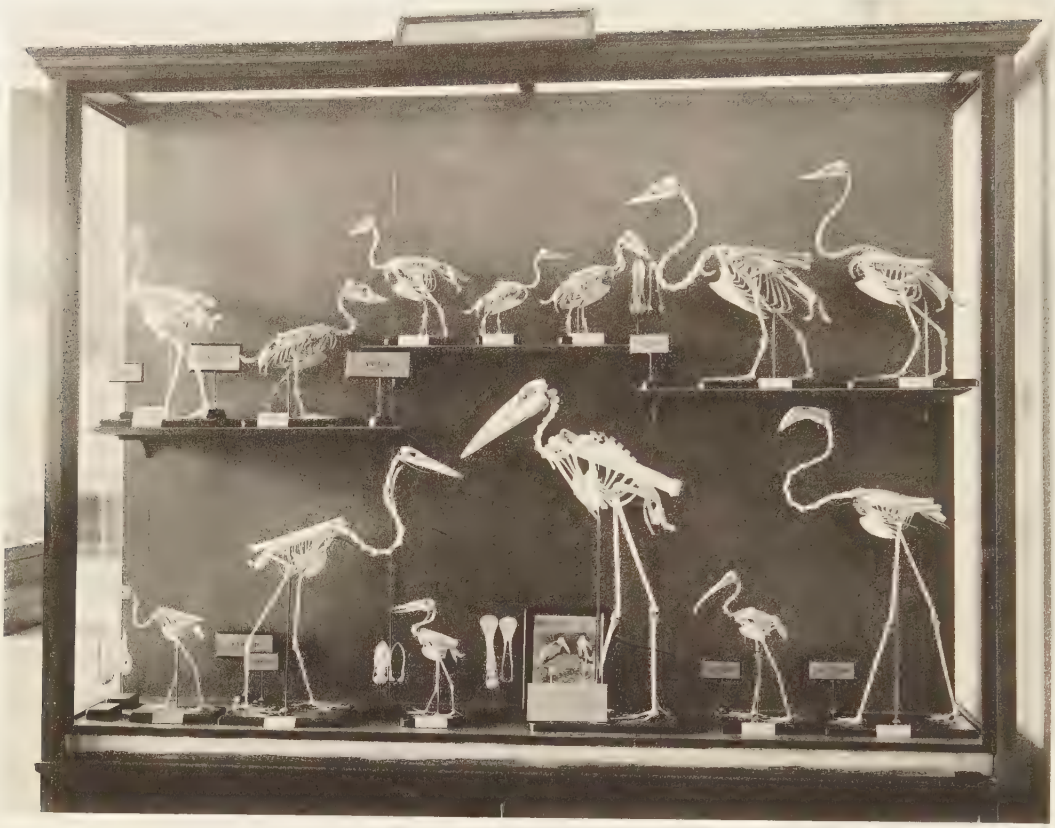


Fig. 5

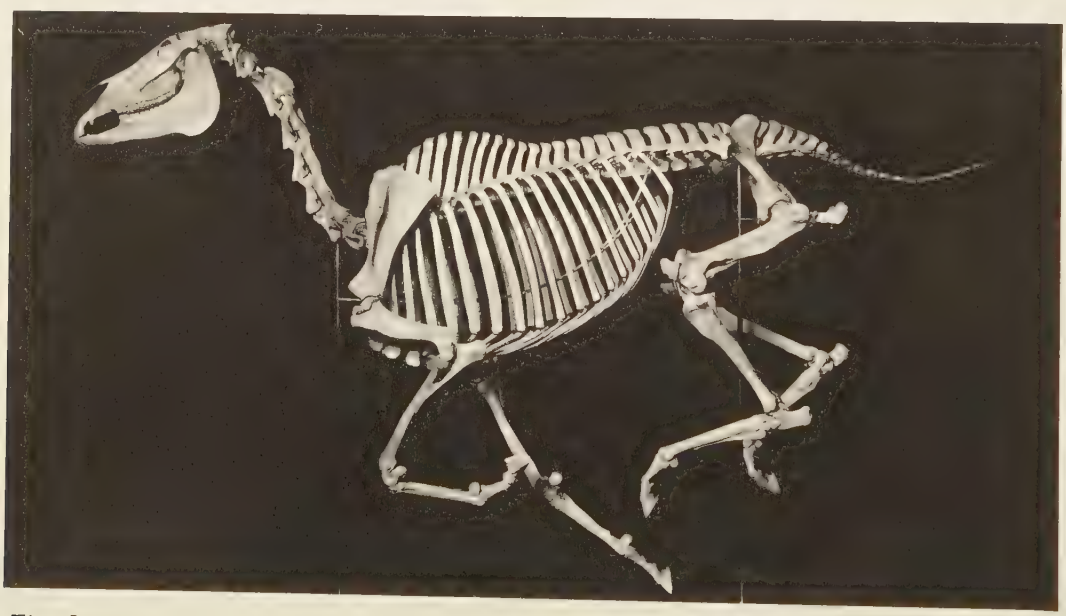


Fig. 6

notion of pairing skeleton with mounted skin in systematic series seems to have had a fairly wide vogue, but can scarcely be said to have created exciting perspectives in our exhibition halls.

At the Naturhistorisches Museum in Basel, K. Rothplets, with the cooperation of the Department of Osteology, undertook the preparation of the skeletons of a wide variety of animal forms in typical action poses. With the support of his institution, he was able to tackle the problem of arrangement for display, as well as the problems of interesting and revealing postures of the individual skeletons. The result is a most attractive exhibit of skeletons of living species in which the pattern of the whole enriches instead of detracting from the visitor's appreciation of each single unit. Without doing full justice to the display, the accompanying Figure 7 may give some inkling of its pleasing qualities.

The skeletons we have discussed so far have been those obtained from the bodies of living species. It has been pointed out that their problems differ in various ways from those of the fossils. The very presence of the living tends to reduce their skeletons to a very minor role in public interest, an unexciting minor detail of contemporary reality, while the fossil remains our one and only clue to exciting mysteries of the past. Probably this is the reason why the competition of the habitat groups could stimulate the museums to a far better and livelier display of their fossil bones at the same time as it very adversely affected their appreciation and treatment of recent skeletons. While the skeletons gathered the dust of the dead, the fossils paradoxically began to take on a new life. The fossil skeleton of an *Allosaurus* feeding upon the fossil remains of a *Brontosaurus* in The American Museum of Natural History is a good example of an imaginative and successful early restoration (see Fig. 8).

But the success of the habitat group in presenting contemporary life in nature with an illusion of complete reality has imbued all disciplines of natural history with an ambition to do likewise. When the fossil preserves or adequately demonstrates the external appearance of the beast, the paleontologist also has a good chance of succeeding by the method of realistic reconstruction of habitat. Among the best examples are the carboniferous forests with their giant insects seen in various museums. Fossil invertebrates generally seem to lend themselves well to life-like presentation, and scenes from the acquatic invertebrate life of remote

Fig. 5. Relatively pleasing traditional arrangement of bird skeletons in the Smithsonian Institution.

Fig. 6. Running horse skeleton by S. H. Chubb, in The American Museum of Natural History.

Fig. 7

Fig. 7. Aquatic mammal skeletons by K. Rothplets in Naturhistorisches Museum in Basel.

Fig. 8. Skeleton of Allosaurus *feeding upon skeletal parts of* Brontosaurus. *The American Museum of Natural History.*

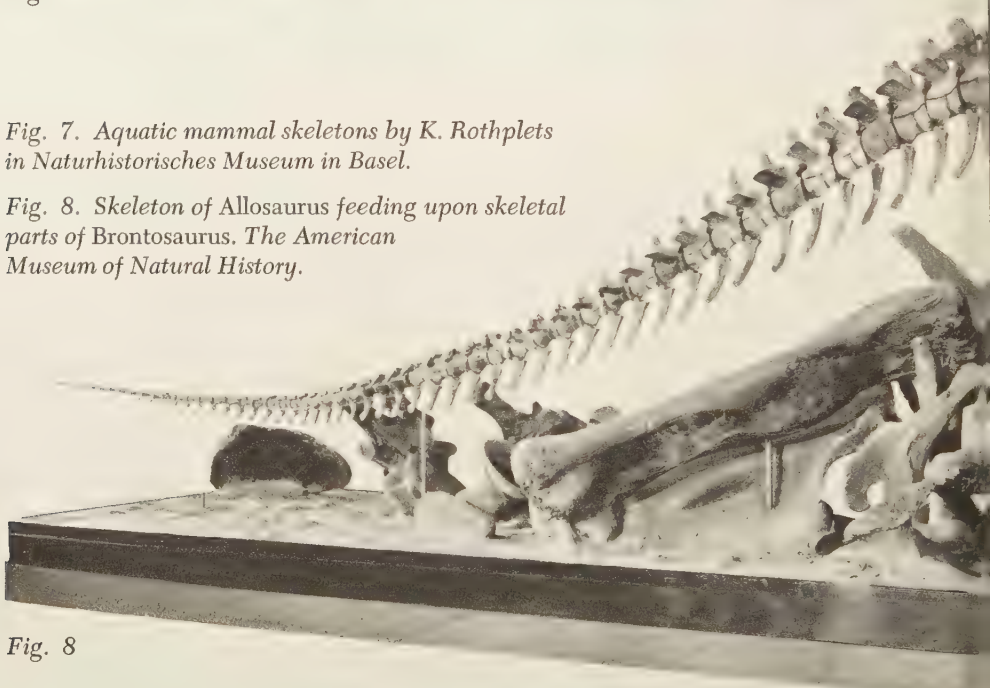


Fig. 8

ages have become popular subjects of display. It is when the fossil vertebrates enter into the act that the scenarist begins to falter, and seems unable to decide whether to use realism, symbolism, impressionism, or mysticism in designing his show. He is torn between his respect for the material, which reveals only the inner mechanism of the species, and his desire to show it in a natural setting of which only the external features could be a visible part. And so we may come upon an aquarium-like glass case in which a truly fine fossil skeleton, restored to perfection, seems to be drifting on open plumbing above a sandy bottom where complete invertebrates await the predator's appetite.

The effect is more quaint than aquatic. Under normal and natural circumstances, decent skeletons simply do not swim around without any meat on. Consistent realism is therefore a physical impossibility, and the

desperate effort to achieve the impossible takes on a slightly hysterical note.

The old installation of giant sloths in The American Museum of Natural History may serve as another example of realism attempted, but not achieved, and therefore slightly disturbing (see Fig. 9). It is the writer's opinion that it was particularly the simulated tree trunk that seemed much too solid for mere skeletons to contend with. Whatever the explanation, there was definitely something that did not seem right about this exhibit. Reactions so far indicate a far more pleased and interested public response to the reinstallation of the same fossil skeletons against a ghost-like background landscape in white on black, and without aggressively real three-dimensional accessories, as shown in Figure 10.

One principle stands out very clearly from the comparisons already made. If the primary object around which an exhibit is organized is only capable of suggesting, then the secondary specimens and artifacts used as accessories must not be permitted to assert themselves in a more explicit manner. Skeleton feeding on skeleton or skeleton leading a skeleton is all right. But man leading skeleton, or *vice versa,* would be more ridiculous than educational. When inherent dissimilarities in the nature of various parts of an ensemble make it impossible to present them all in the same manner, the form of presentation of the secondary elements must be less explicit than that of the principal objects. Plants and trees have no counterpart for the vertebrate skeleton to ease the dilemma of the exhibitor. Even the most conventionalized models of vegetation in solid, three-dimensional form create a rather incongruous setting for gamboling skeletons, but a ghost-like landscape barely suggested in the darkness of the background may add information, depth, and esthetic quality to the display.

A beautifully simple application of the principle of effective suggestion, rather than attempted realistic illusion, may be seen in a recent installation at the Museum of Comparative Zoölogy at Harvard College. Disdaining any pretense at realism, it succeeds in creating such a strong and self-evident suggestion of an aquatic existence that it instantly and automatically registers on the mind of the observer without any conscious ratiocination. The means by which this is accomplished are so simple that they seem to offer little to talk about. But the slight difference be-

Fig. 9. Old installation of Giant Sloth skeletons in The American Museum of Natural History.

Fig. 10. New installation of Giant Sloth skeletons in The American Museum of Natural History.

Fig. 9

Fig. 10

Fig. 11

tween a hit and a miss always deserves our attention. The exhibit consists of virtually nothing but a beautifully preserved fossil skeleton of the giant aquatic reptile *Kronosaurus,* installed in a half tunnel with the off side of the skeleton partly buried in the watery blue of the plaster matrix from which the specimen seems to emerge into view before the visitor, between thicknesses of the same solid blue above and below. The fact that this arrangement permits the concealment of nearly all the usual means of support further strengthens the suggestion of a free-floating existence conveyed by this very attractive, but far from liquid-looking display. While the exhibit cannot make us *think* we are seeing an animal moving through the water, it does make us *feel* very clearly that if this is not what we are looking at, it certainly ought to be. And so suggestion succeeds where illusion would fail.

Perhaps, therefore, the new exhibit at the Museum of Comparative Zoölogy is not merely solving the special problem of its own material but is also pointing towards new solutions for other problems we thought we had already solved by imperfect illusion rather than perfect suggestion, according to heretofore hallowed concepts of rules of propriety in scientific museum exhibition.

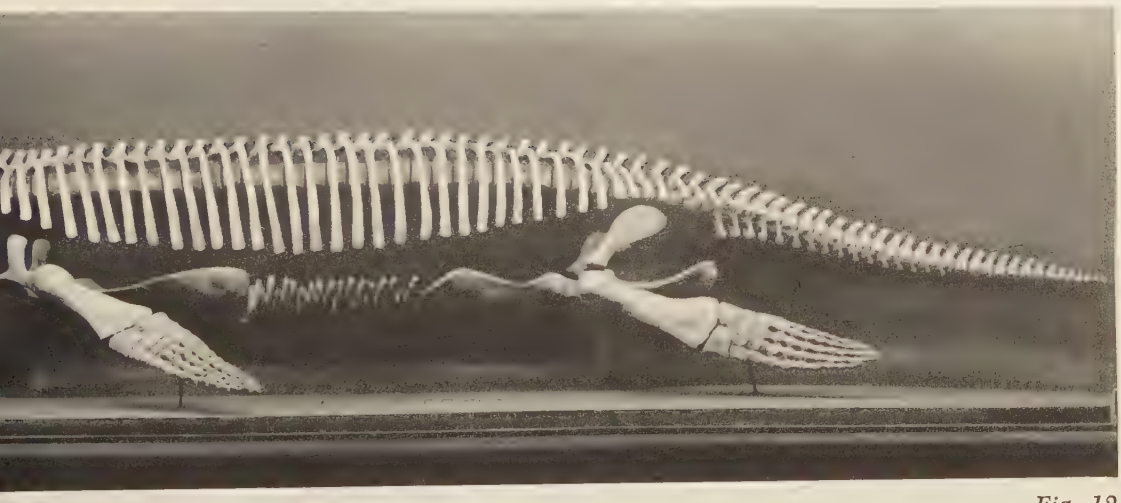


Fig. 12

Fig. 11. Skeleton of man leading skeleton of horse, by S. H. Chubb. The American Museum of Natural History.

Fig. 12. Kronosaurus *in the Museum of Comparative Zoölogy at Harvard.*

The Problem of Arrested Movement in Static Exhibits

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

The writer has long been intrigued by the question of how much "frozen action" the average viewer is able to accept in a museum exhibit without a loss of illusion, or even of faith in the integrity of presentation. It is a problem obviously calling for objective investigation by students of human behavior, and perhaps a few illustrations with some very broad generalizations based upon personal reactions may serve to stimulate a more adequate search for the factors and principles involved.

A habitat group in The American Museum of Natural History shows two Alaskan bull moose caught in a very dramatic but also very fleeting moment of battle. The animals may be viewed as a truly magnificent piece of sculpture—an outstanding example of a taxidermist's skills in the plastic art. But, when seen as part of the larger picture attempting to create an illusion of actual life persisting in a state of immobility, the postures of the embattled beasts have a quite disruptive effect in the eyes of many observers. The excellent museum of Malmö, Sweden, has boldly probed even farther beyond the safe limits of arrested movement contained within a static exhibit, in a diorama showing a cheetah in mid-air in its final leap upon a fleeing duiker antelope that also has all four feet off the ground. All museums should be grateful for the contribution such daring ventures make to our understanding of exhibition methods.

As a contrast with fighting moose and pouncing cheetah, we may consider the tense stalking of a hare by a Canada lynx in another habitat group in The American Museum of Natural History. This also has drama and conflict, but the sense of illusion is not strained by postures of movement that are hard to accept in immobility.

continued on page 382

Fig. 1. Fighting bull moose. The American Museum of Natural History.

Fig. 2. Cheetah and duiker antelope. Malmö Museum.

Fig. 3. Canada lynx stalking hare. The American Museum of Natural History.

Fig. 4. Wild asses. The Academy of Natural Sciences of Philadelphia.

From this comparison a very simple generalization would seem to suggest itself, namely, that complete illusion requires some sort of reasonable proportion between the length of time during which an aminal actually could hold the posture shown and the length of time it takes the visitor to register his impression of the entire exhibit in his mind.

But, at this point, we may recall some fine examples of skeletons immobilized in the midst of very fast action.[1] In these instances the arrested movement does not trouble the eyes or minds of the viewers. Obviously our generalization must be modified by taking into account the nature and purpose of the over-all exhibit in which the arrested movement is contained. The display of a skeleton in action is in itself a negation of illusion and therefore not subject to the requirements of deception. If we wish to illustrate by static exhibits the internal mechanics or external dynamics of fast animal action, it is therefore better to do so by the separate display of isolated specimens, whether whole or dissected, rather than trying to achieve the purpose by the incorporation of "frozen action" in the image of a natural setting striving for illusion.

Having reached this point in his reasoning, the writer felt fairly happy with his conclusions, vague though they were, until a new visit to the Academy of Natural Sciences of Philadelphia raised new doubts at the sight of a habitat group showing three wild asses running off towards the left front of the exhibit in a moderately vigorous manner. It would seem as though this immobile pretense should have weakened the impact of the display. But, in the writer's case at least, it did not. Perhaps this is due merely to personal idiosyncrasies, but perhaps also it may reveal a further refinement of the basic principles involved.

In the fighting moose and the leaping cheetah we are not only dealing with a speed of action that it would take a very fast camera to "stop" as the taxidermists have done, but also with a kind of action that would abruptly change its character within a fraction of a second. One moose is apparently on the verge of having a leg broken. The cheetah is about to land upon its victim and proceed to the kill. On the other hand, the three wild asses could easily keep on running in the same manner for quite a long time, although the momentary postures of each might be undergoing as rapid changes all the while as would those of the moose or cheetah if they were alive. It would therefore seem that an action which can be long sustained without change of its essential character fulfills the requirements for the display of arrested movement in a natural setting almost as readily as does a posture that can be long maintained.

[1] See Parr, "The Skeletons in the Museum," CURATOR, vol. III, no. 4, October, 1960, particularly fig. 6 on p. 302.

It also seems quite probable that a flock moving in unison may put less of a strain upon the sense of illusion than would a single animal arrested in exactly the same type of motion, or several animals immobilized in different and contrasting types of action. With the eye and the mind captivated by the image of the herd, which would present a relatively immutable picture even in life, the fleeting and varied postures of limbs and parts escape attention, or lose their sense of instability by integration into the more stable tableau of the flock. In Figure 4 one sees three wild asses on the run, but one does not pay attention to the individual positions and postures of twelve different legs, as one unavoidably notices all four legs of both cheetah and duiker antelope in Figure 2.

These comments are offered as personal observations only, in the knowledge that it is very important to learn where to "draw the line" in depicting nature by museum methods, and in the hope that others may add their own observations and conclusions to a discussion of how to show movement without motion.

The Revival of Systematic Exhibits

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

While many other kinds of display declined in the shadow of the habitat group, it was primarily the systematic exhibits that suffered a direct loss of museum territory as well. Other subjects were eclipsed, but systematics were being replaced. To add insult to injury, a specimen removed from a systematic array would often turn up again in the enemy's camp as a slightly remodeled member of a happy habitat group. The process is still continuing, and in small museums it can actually become a quite destructive influence, when a brief, but sound and, in its fashion, comprehensive systematic digest of nature is set aside to give room for a few space-consuming glimpses of special and spectacular situations that are insufficient to develop any continuity of theme or integrated coverage of subject. But there has also been a gradual revival of systematic, and similar, exhibits going on in many museums over the last ten or twenty years.

Since we are here concerned not only with subject matter, but also with style of display, we shall include in the discussion various types of exhibits that might not be regarded as systematic in the strict sense of the biologist, but have in common the exhibition of individual specimens as separate objects arranged to show relationships that do not arise from proximity in space, rather than the exposition of situations revealing the nature of coexistence in the same location. This may include faunistic and geographic exhibits using the specimen form of presentation, raw materials exhibits, and others in the same style.

Among the various forms of life it is particularly the birds that seem to have become the focal point of museum skill in systematic forms of presentation. Mammals cover such a range in size, from mouse to whale, that they almost defeat any attempt to create a general esthetic pattern, or a scheme of decorative seasoning with intimate detail that will give prominence according to importance and not merely according to size. Insects

Fig. 1

are too small to lend themselves very well to over-all effects. Their arrangement is a problem of visual texture[1] rather than form and perspective. But the sizes of the birds are just right to present an interesting challenge, without offering an insoluble problem. The great popular interest in birds, which often strongly accentuates their esthetic appeal, gives added incentive to the task of display.

It was also among the birds that the systematic exhibits suffered both the earliest and the greatest dislocations by the introduction of the habitat group. The systematic display of insects, mollusks, and other invertebrates continued its cautious progress almost undisturbed, conservatively behind the times in style and artistic vocabulary but still advancing. Many mammals are too large to be placed in adequate habitat settings. The development of systematic specimen exhibits of mammals therefore continued in a minor fashion in the shadow of the habitat group. Only in the case of the birds do the systematic exhibits of single specimens seem to have undergone a long period of almost complete neglect both curatorially and artistically. Perhaps in days of greater optimism it was hoped that all birds of public interest would ultimately be shown in their own habitat. Whatever the reasons and causes, it is fair to say that the old systematic exhibits of birds, before they were, or are, reached by the recent wave of moderniza-

[1] See "Designed for Display" by A. E. Parr, CURATOR, vol. II, no. 4, p. 323, 1959.

Fig. 1. Old systematic bird hall in The American Museum of Natural History, photographed in 1900.

Fig. 2. Systematic bird gallery in the Muséum National d'Histoire Naturelle.

Fig. 2

tion, generally have a more antiquated and neglected appearance than any other type of specimen exhibits.

Considering all the circumstances it is, therefore, not surprising that the revival of systematic exhibition within the biological sciences (excluding paleontology) has been spearheaded by, and until now almost limited to, the subject of ornithology which has come to be a testing stone for the designer's and the display artist's ingenuity in dealing with isolated natural history objects. Only more recently and still rather rarely do we find the revival of systematic exhibits extended to mammals, as in the notable new installations in the United States National Museum.

Our first illustration may serve to remind us of the heights of elegant tedium attained by the systematic display of birds, before the advent of the habitat group. It is true, of course, that some systematic galleries, like that of the Muséum National d'Histoire Naturelle in Paris, were able to achieve a cozy cornucopia atmosphere of profusely inhabited space, conducive to nostalgia even today. But these were the exceptions. Most systematic displays of the pre-habitat era could stimulate little but boredom except in the most ardent devotee. Figure 3 should refresh our memory of details that were similar the world over. Compared with Figure 2, it reveals some slight influence by the habitat concept, but this trend generally failed to develop much further over a period of nearly fifty years, begin-

ning about 1880, while nearly all ornithological exhibition skills were directed towards the habitat group itself. Displays such as those represented by Figure 3 can still not be described as rare sights, and were quite commonly seen as late as in the 1930's even in museums noted for their active exhibition program. Shelves upon shelves of curly-toed birds on T-perches, and flat-footed birds on square wooden bases, were the predominant elements of style in specimen display.

As the museums began to seek ways of emancipating their systematic exhibits from the tawdry uniformity of neglect, there were several directions in which they could seek alleviation of the monotony that is to some extent inherent in any systematic presentation. Relief can be obtained through the pure esthetics of selection and arrangement, and through formal, non-representational designs of setting and background, both in form and in color. These are, in some ways, the simplest and least expen-

Fig. 3. Glimpses of details from the old systematic exhibits of birds in the Museum of Bergen, Norway.

Fig. 4. New hall of Swedish birds in Malmö Museum, Sweden.

Fig. 3

Fig. 4

sive methods of improvement and are those that have been most widely used. They leave the specimens strictly alone, in splendid isolation from the framework in which they are presented. The esthetics of the display merely serve to increase the independent attraction and interest of the objects, without suggesting external associations of special emotional significance to the viewer. When artistically successful, the austere objectivity of such exhibits has much to recommend it for purposes of formal education. But its lack of warmth is probably a liability with the general public that has not yet had its interest enlisted by inner compulsion or external requirements.

On first thought it would seem reasonable to assume that all improvements must begin with the abolition of the shelves. But a visit to the natural history museum in Malmö, Sweden, convinced the writer that this is not necessarily true. The newly reinstalled systematic collection of Swedish birds actually presents itself in very attractive perspectives to the entering visitors. Abundant light, ample space between, above, and beside the cases, extreme simplicity of architectural forms and accessories such as the light fixtures, and that indefinable element that we can only call good taste in the selection and spacing of the specimens give the entire hall a pleasantly relaxed and inviting atmosphere instead of the claustrophobic tensions of our older systematic catacombs. Another acceptable use of shelves is shown by some of the exhibits of birds in the Boston Museum of Science, where vertical segmentation of the area of display is avoided through not having the shelves extend across the width of the case. In most cases, however, the museums have sought a greater freedom of display by doing away with all use of shelves.

Figure 6, from a recent installation in the Narodni Museum in Prague, gives a very fine example of the pleasing effects that can be obtained by shelf-less arrangements in space, even without the abolition of old-fashioned bases and other traditional forms of support for the individual specimens. A more frequently observed fashion in modern systematic exhibition no longer treats the supporting elements as attributes of the specimens, but rather tries to make the props part of the background design. Natural branches with their covering bark give way to wooden pegs painted to match the color of the wall from which they project. Separate base plaques of distinctive color and texture are abandoned, and the specimens are placed directly upon supporting forms that are integral

Fig. 5. Birds of Massachusetts in the Museum of Science in Boston.

Fig. 6. Bird arrangements in the Narodni Museum, Prague.

Fig. 5

Fig. 6

Fig. 7

Fig. 8

parts of the over-all design. Figure 7 shows that good effects can be achieved by arrangement alone, even with mammals, at least when they belong to a family of reasonably limited range in size.

In a different genre, Figure 8 illustrates how even a local identification collection using more study skins than mounted specimens can be made attractive by a pleasing disposition of the material. Figures 9 and 10 illustrate arrangements of fully mounted birds in the new installations in the British Museum and also show what became of the T-perch (Fig. 9) and of the flat wooden base (Fig. 10) when shelves were discarded. Figures 11 and 12 show similar arrangements in the Hall of the Biology of Birds in The American Museum of Natural History.

A comparison between Figures 10 and 11 also brings out a point that has often forced itself very strongly upon the writer's attention, namely, the danger of using curved, and particularly symmetrically curved, shapes in the presentation of individual specimens. Such forms make it very difficult to integrate the parts of an exhibit into a harmonious whole, at the same time as they have a tendency to impress themselves far more strongly upon the attention and memory of the observer than do polygonal, and particularly rectangular polygonal, forms, of various sizes and proportions, when used together to create a setting for individual specimens. The use of curved shapes so easily tends to overwhelm the actual contents of an exhibit, with the visitor carrying away only a memory of the "artistic" arrangement itself rather than what the exhibit was intended to teach. The samples here compared are neither the worst of one, nor the best of the other, but the difference is probably adequate to illustrate the point here considered.

The modernization of the bird exhibits in the Chicago Natural History Museum is of great interest. Perhaps because the museum is younger than nearly all the other large museums of its kind, the ornithological exhibits never suffered under the regime of the shelves. Being among the first to install shelf-less systematic exhibits, the Chicago Museum was also among the first to learn that when the pattern created by the shelves is abandoned, however dreary and depressing it may be, it becomes necessary to seek other means of demarcation and arrangement to avoid the danger of a homogenized uniformity of free-floating specimens even more

Fig. 7. Systematic display of dogs of the world in the United States National Museum.

Fig. 8. Identification exhibit of New York birds in The American Museum of Natural History.

Fig. 9

Fig. 10

monotonous than their regimentation on shelves. Figure 13 gives an example of the old exhibits, while Figure 14 shows some of the new displays. Two things should be noted in Figure 14. It shows a great variety of supporting forms, including round pegs and flat plaques variously shaped and oriented, and designed to appear as extensions of the background rather than separate elements appended to it along with the specimens. Secondly, Figure 14 shows a very effective use of background panels to reveal, in an esthetically pleasing manner, systematic dis-

continued on page 130

Fig. 11

Fig. 12

Fig. 9. Lyre birds and perching birds in the British Museum (Natural History).

Fig. 10. Systematic display of jacanas, waders, and plovers in the British Museum (Natural History).

Fig. 11. Cormorants and others in The American Museum of Natural History.

Fig. 12. Turacos and cuckoos in The American Museum of Natural History.

Fig. 13. Old bird exhibit in the Chicago Natural History Museum.

Fig. 13

Fig. 14

tinctions and relationships that were previously indicated only by labels and proximities or distances between specimens.

Actually the display artist has three variables he can manipulate to obtain a desired effect from the background alone, namely, color, texture, and form. Simply painting various areas of the background in different colors is the easiest, oldest, and perhaps still the most widely used method of introducing variety with a significant meaning. The results, when striking, are usually unattractive; when pleasing, usually muted and subdued, although there are exceptions of both kinds. Better effects are more readily obtained when changes in color are combined with changes of texture or of form, or both. Changes in texture alone are produced by the methods of the paperhanger, as, for example, when the smooth surface of a composition board is partly exposed and partly covered by various pieces of coarse-fibered textile, smooth felts, and other materials that can

be glued on to create different surface effects. Changes in background texture without changes in form are most successful in the display of quite small objects. When we speak of the form of the background, we are thinking in the dimensions of the bas-relief, not of the free-standing sculpture, and mostly of the application to each other of overlapping

Fig. 14. From the new bird exhibits in the Chicago Natural History Museum.

Fig. 15. Grebes and loons in The American Museum of Natural History.

Fig. 15

Fig. 16

Fig. 17

shapes cut from materials of visually significant thickness, so that the background is quite conspicuously divided into various surfaces falling into different vertical planes. This is probably the most effective way of making the background contribute both to the contents and the esthetic variety of systematic exhibits. Other methods include the application of colored wires or other narrow forms to replace mere lines simply and undramatically painted directly on the background surface.

The reaction against shelves often seems to have resulted in an overanxiety to conceal the vulgar need of mechanical support for the specimens, either by actually hiding the supporting device, or so integrating it with the architectural framework of the exhibit (see Figs. 8, 12, and 14) that it seems part of the container, rather than something pertaining to the needs of the specimens. But this de-emphasis of the practical necessities does not represent the only direction in which happy solutions can be found. It is also possible to emphasize the mechanical supports to very good effect, as shown, for example, by the trellis-like contraption (see Fig.

Fig. 16. Birds of Spain in the Academy of Natural Sciences of Philadelphia.

Fig. 17. Ducks in the Academy of Natural Sciences of Philadelphia.

Fig. 18. Giant fossil crocodile skull in the American Museum.

Fig. 18

9) used to advantage in the new hall of birds in the British Museum (Natural History).

All the improvements and embellishments discussed up to this point are purely formal and esthetic, serving only to make more palatable the contents already present in the oldest systematic exhibits on their crowded shelves. Giving the decorative treatment its own message to convey provides opportunity for a still richer variety of presentations.

An extremely simple example of a pleasantly light touch is the small ornamental waves indicating both the aquatic environment and the Plimsoll lines of the grebes and loons shown in Figure 15. A far more elaborate

Fig. 19

Fig. 20

and lyrical addition to the display of separate specimens in geographic systematic order is presented by the background paintings used in the Academy of Natural Sciences of Philadelphia behind specimens often boldly poised on unadorned T-perches varying only in height. Each painting covers the entire rear of a case with a type of landscape that has come to be regarded as representative or symbolic of the region covered by the exhibits shown in front. The style of painting appears to this writer, at least, to have strongly romantic overtones which do not seem out of place, and the total effect is both very unusual and very enjoyable.

The distinction between the systematic exhibits in Philadelphia and

Fig. 19. New primate exhibit in the United States National Museum.

Fig. 20. Old primate display in the United States National Museum, photographed about 1925.

those that the author on a previous occasion[2] has referred to as pseudo-habitats may seem slight but is nevertheless real. In the pseudo-habitat there is a pretense that the specimens actually have invaded an abstract environment and occupy natural positions on, or among, its conventionalized forms. In Philadelphia the specimens themselves are simply placed on traditional stands, frankly divorcing them from the painting behind.

The use of a pictorial reconstruction of the beast painted in very subdued colors behind a giant fossil crocodile skull in The American Museum of Natural History may perhaps be regarded as a method distantly related to the technique employed in the Audubon Hall in Philadelphia.

In the new mammal exhibits in the United States National Museum, habitat groups overhead have been used in a very striking and effective manner to enrich a systematic display of primates, at eye level. Comparison with an old installation of corresponding material in the same institution (Fig. 20) bears amusing testimony to the progress of our ideas about systematic display. One must regret that the particular combination used in Washington can lend itself only to the presentation of arboreal or aerial life, but it might well find a wide application in ornithology.

In the Zoological Museum in Bergen, Norway, the formal approach to the art of display has given way to casual and intimate informality. Non-objective architectural or decorative motifs are entirely lacking. Instead, the exhibit is enlivened by the use of anecdotal items to provide the necessary support for the specimens in a pleasing over-all arrangement. The material does not pretend to have the contents of habitat groups, but by reminding of incidents of common occurrence, and particularly incidents involving man and his works, the accessories serve to establish an association between the specimens and the visitor's own experience that cannot avoid stimulating his interest. One notes a wagtail on the grip of a shovel, sparrows in a sheaf of grain such as is customarily hung out for the birds at Christmas, swifts on telephone lines with pole and porcelain insulators, a thrush on the gilded spear at the top of a flagpole, man-made bird houses, and a parenthetic suggestion conveyed by a broken piece of barbed wire. This "humanizing" of a museum's exhibits has much to recommend it, and when we consider that Figures 3 and 21 deal with the same subjects in the same museum before and after modernization, we may get a measure of the extent of the revival of systematic exhibition at its best.

[2] Parr in CURATOR, vol. II, No. 2, p. 125, figs. 20 and 21, 1959.

Fig. 21. Glimpses from the new systematic exhibits of birds in the Museum of Bergen, Norway.

Fig. 21

Temporary Exhibition versus Education

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

During recent years exhortations urging constant changes of all exhibits have become increasingly frequent and voluble at museum gatherings. Self-assured voices of progress and modernity speak in commanding tones of the need to keep up with the times by always showing its latest and most thrilling developments. The argument sounds very convincing and intimidating until we examine it more closely and begin to suspect that it actually expresses worship of popularity rather than devotion to education.

When we think of the wonders of the space age we are so overwhelmed that we incline to forget how those who engineer the miracles of our day also had to begin by learning their "three R's" as their great grandparents did before them, and their great grandchildren will have to do in their turn. The law of gravity is as fundamental to anything we may do or plan today as it was when Newton first discovered it. Picasso has not superseded El Greco or Gauguin, but has merely added to the abundance of art worth knowing.

The problems and temptations of the exhibitor may be particularly difficult to overcome in the sciences, where basic principles drably endure, while their spectacular applications are fleeting almost in proportion to their dramatic impact. The clanking triple expansion steam engines have gone, but the thermodynamic laws of gases still operate within the closed shells of whispering turbines. Screws and bolts will remain for a long time, but the propeller airplane is already on its way out.

Behind the thrilling inventions and innovations that come and go is a growing body of knowledge that each generation must learn anew, regardless of how often it has been taught before. It is an unfortunate fact that it is much harder to teach than to titillate, but all institutions claiming to be partners in education must share the burden of communicating a large

and permanent body of facts and experiences that may be deeply fascinating, but does not vary excitingly with the times to provide a stream of "spot news" for the superficially curious. In many kinds of museums, exhibits of temporary contents can therefore only be like the reflections of light from surface ripples on a very deep pool. But what could be more enchanting than the glitter of sunshine on a pond in the forest?

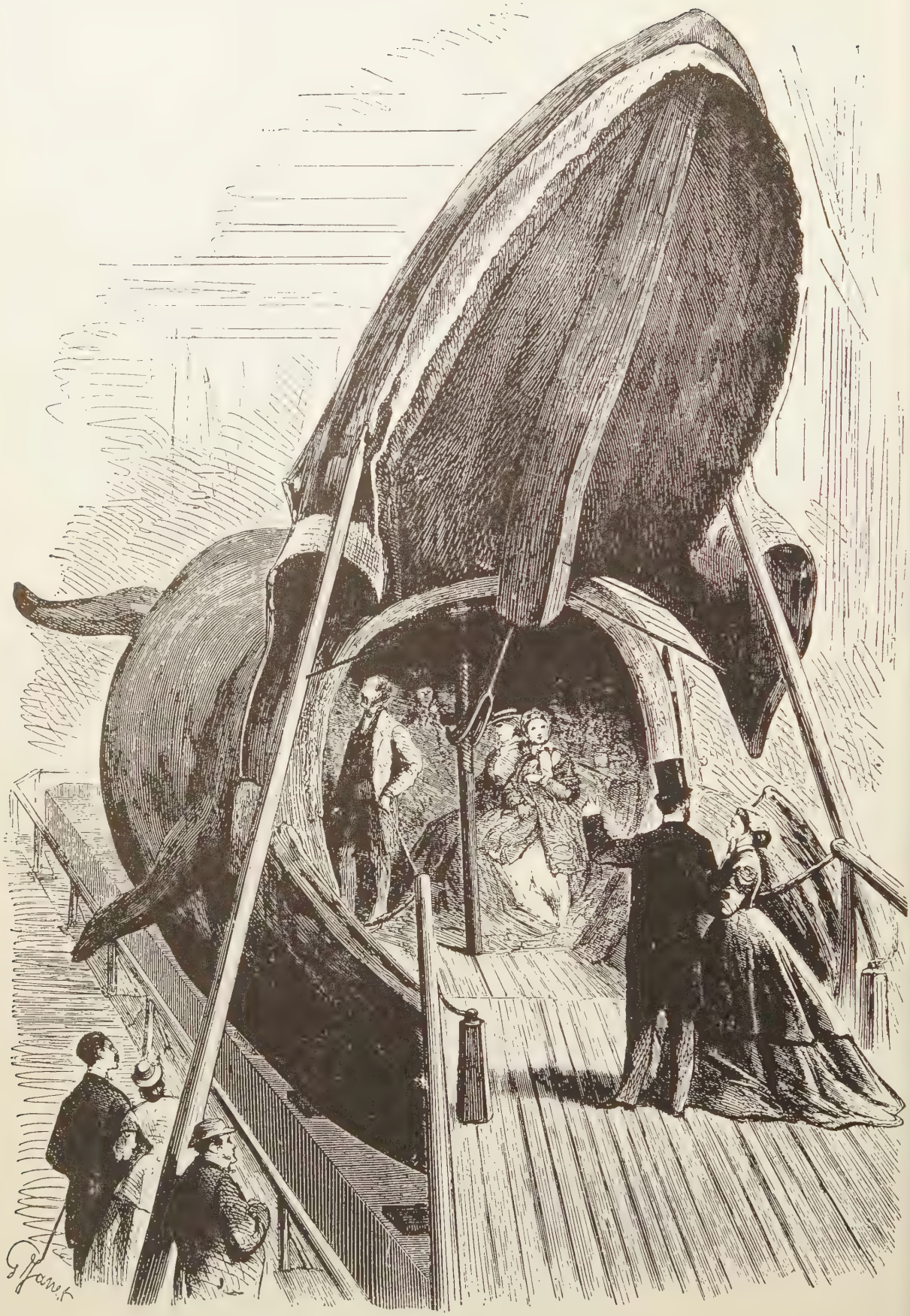
While exhibits of temporary contents are by their very nature prevented from participating directly in the eternal task of basic education, their indirect educational service of intellectual pump-priming may be of invaluable aid. But the transient display cannot be used entirely without caution and restraint, even in such auxiliary functions. While the spark of a spectacular show may light the flame of serious interest and worthwhile purpose, it can also lead from passing entertainment to permanent bedazzlement. The proper functions of magicians are not necessarily also the proper functions of museums.

The words "exhibits of temporary contents" have been used with a purpose to describe the type of display usually referred to by the advocates of keeping up with the times by showing the latest. The fact that an object or a principle is of eternal value or validity does not mean that it also has to wear eternal raiments on display. A reasonably modern style of presentation is as important for the exposition of the eternal verities as it is for the communication of our passing fancies. From that point of view all museums would be better off if they realistically faced the need to treat all exhibits as temporary installations, regardless of whether or not their contents must always remain a feature of the exhibition program.

Concerning Whales and Museums

A. E. PARR, SENIOR SCIENTIST

THE AMERICAN MUSEUM OF NATURAL HISTORY



Concerning Whales and Museums

A. E. PARR, SENIOR SCIENTIST

THE AMERICAN MUSEUM OF NATURAL HISTORY

Whales have always been a problem and a challenge to exhibitors. Gargantuan size provides a ready-made source of excitement. But optical uniformity of environment offers little opportunity for visual enrichment of setting.

Stranded whales have probably drawn crowds of curious or hungry spectators before written history began. When somebody first got the idea of claiming ownership and charging admission to the spectacle is not recorded. But it undoubtedly happened a long time ago.

In the early days, problems of size and decay confined the show to the spot where the whale had reached its doom under its own power. When we learned to delay the state of repulsiveness by icing and embalming, it became possible to take time to move the disconsolate carcass to more favorable locations for mass attendance. The wake of the whale might cover long distances and much time before dust returned to dust. The traveling corpse of a minor behemoth of the seas could be admired in New York as late as in 1954, upon payment of a proper tribute to the dead.

Much as one may now criticize the tedium of endless rows of stuffed specimens on shelves, even the earliest museums of the eighteenth century obeyed the cardinal principle that a living species must be restored to the posture of life before it is shown. This was even true of the thousands of birds on the tiresome T-perches we now despise so much. When whales in the round finally followed their skeletons into the museums, their dejected appearance of death and imminent decay was properly deemed to offer a completely unacceptable image of the elegant bodies that glide so easily through the waters.

Fig. 1. The Malmö whale in Stockholm, 1866, mounted skin. After Löwegren (1961).

Since whales do not perch, the problem of presenting them in their living form was a good deal more complicated than the difficulties of bird taxonomy. In consideration of their normal environment, it was recognized that the specimens should have as little contact with other solids as possible. The question was whether to suspend or support. Supports are mechanically simpler and also carry an illusion of greater safety. The first museum whales could therefore be seen placidly floating across the tops of three or four newel posts or similar devices, after the manner of museum sharks. With more experience and confidence in the structural use of steel, suspension became the preferred method of installation.

In the meantime, the influence of some of the best illustrated works on nature favored the resting over the hanging whale. In any kind of graphic rendering a whale in the water becomes a whale in a void. Figure 4 illustrates the dilemma very clearly. Whether the void is blue or blank makes little difference. No wonder, therefore, that artists sought satisfaction for their sense of design by the use of imaginary forces that nature could never duplicate. Giant whales are tenderly deposited, without a scratch, high among rocks and other picturesque objects on shore, as gracefully draped as Paisley shawls. The whimsical tableau that pleased the artists and art lovers most could not have been more embarrassing, humiliating, and disastrous for the poor whales. But they did provide handsome pictures that anyone can be glad to own, and it seems reasonable to assume that they may have helped to bring about such a pleasingly casual exhibit as that shown in Figure 8.

The method used in Malmö to show a small porpoise is, unfortunately, not equally applicable to larger whales. The reason for this is in itself a demonstration of a biophysical principle of considerable interest, which was first called to our attention by Galileo himself. Other things being equal, the weight of a body is approximately commensurate with its three-dimensional volume, while the strength of its supporting tissues such as bone and muscle is related only to their two-dimensional cross sections. If a body grows to eight (i.e., 2^3) times its original volume and weight, and all its parts remain in the same proportion to one another as before, then the strength of the supporting organs will have been multiplied only by four (i.e., 2^2) and will not be strong enough to sustain the increased load. This is the basic reason why the skeleton of a large land animal is so much heavier in proportion to its body than that of a small species. The difference becomes very striking when two such skeletons are shown in illustrations of the same size. Galileo quite logically felt that the mathematical relationship between over-all dimensions and the dimensions of supporting parts imposes a maximum limit on the size that can be reached by any animal having to resist the forces of gravity by the strength of its own structure. The whales have partly circumvented the problem by

continued on page 75

Fig. 2. The Haröy whale in New York, 1954, embalmed.

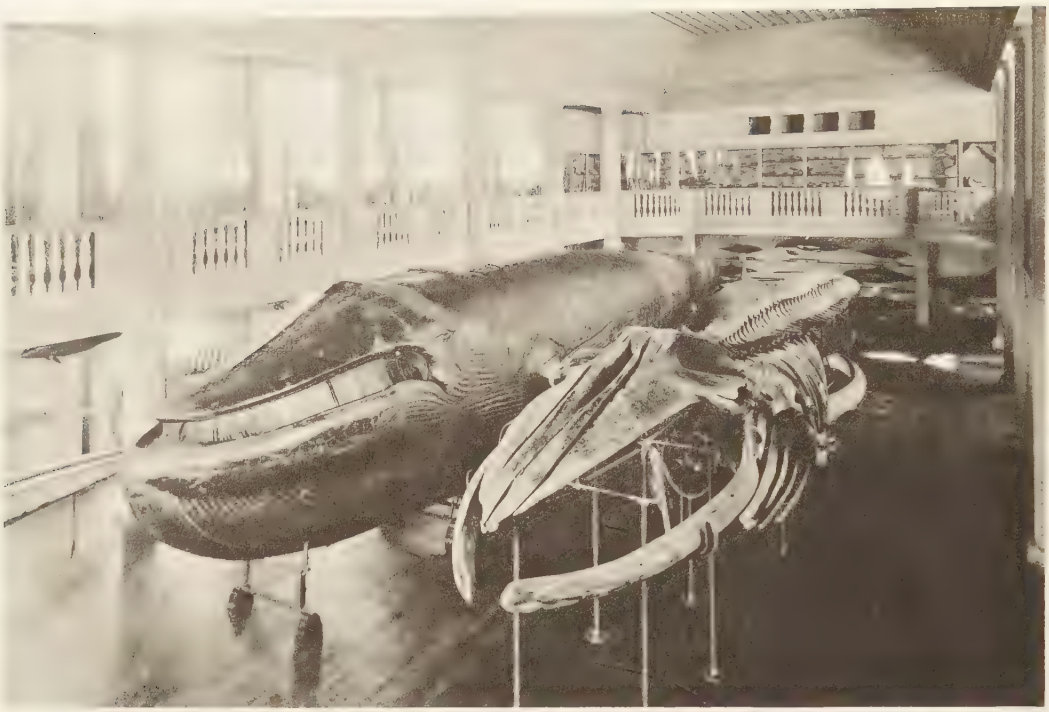


Fig. 3. The Malmö whale. Naturhistoriska Museet, Göteborg. After Löwegren (1961).

Fig. 4. A whale in the water is a whale in a void. The American Museum of Natural History.

Fig. 5. Rorqual as shown by Jardine (1837).

Fig. 6. Rorqual as shown by d'Orbigny (1849).

Fig. 7. Dolphin according to d'Orbigny (1849).

Fig. 8. Porpoise in the Malmö Museum. From Löwegren (1961).

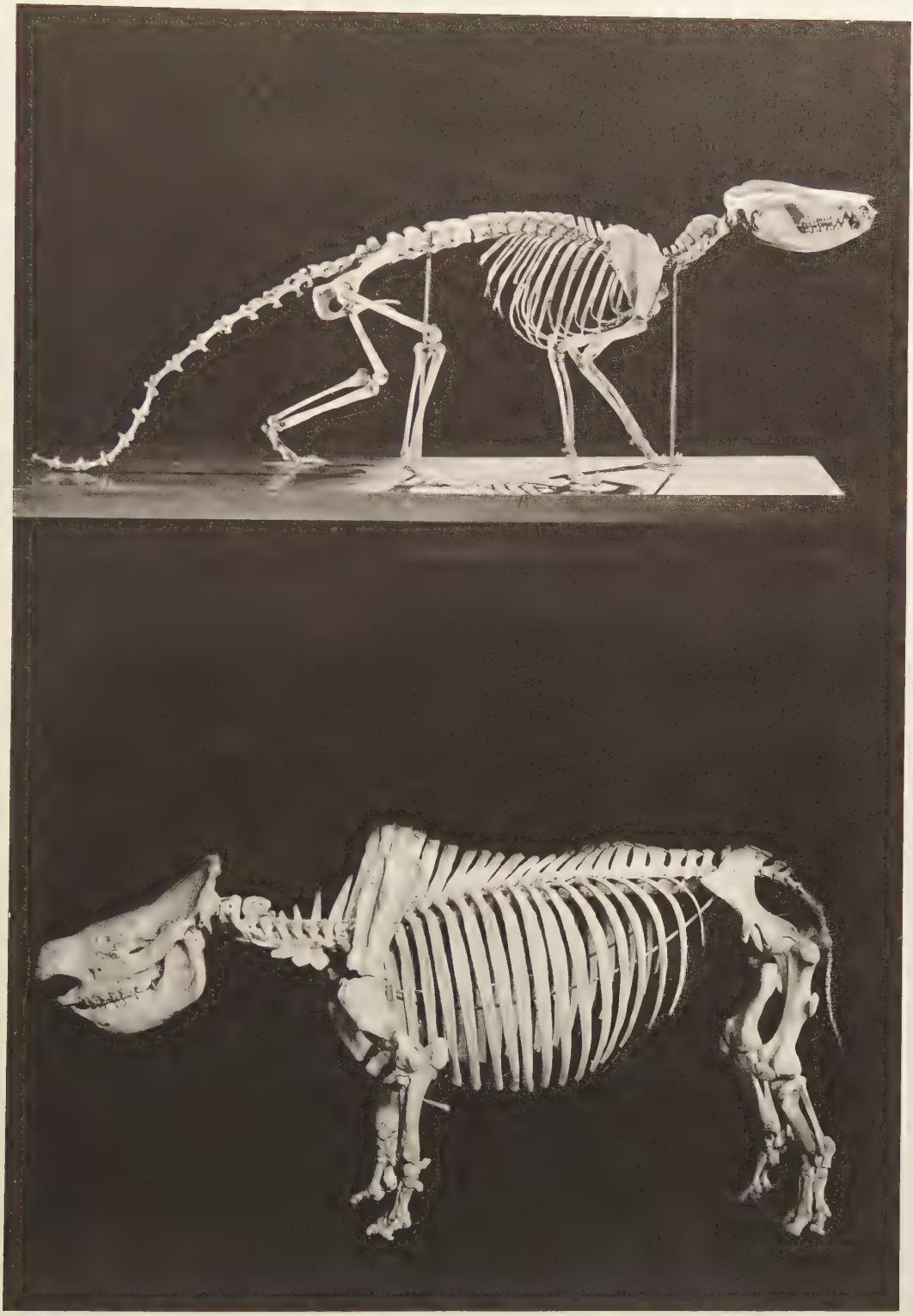


Fig. 9. Galileo's principle. Skeletons of opossum and of hippopotamus reduced to the same size.

Fig. 10. Images of gross obesity. Scale models of beached whales, from Jacobi (1914).

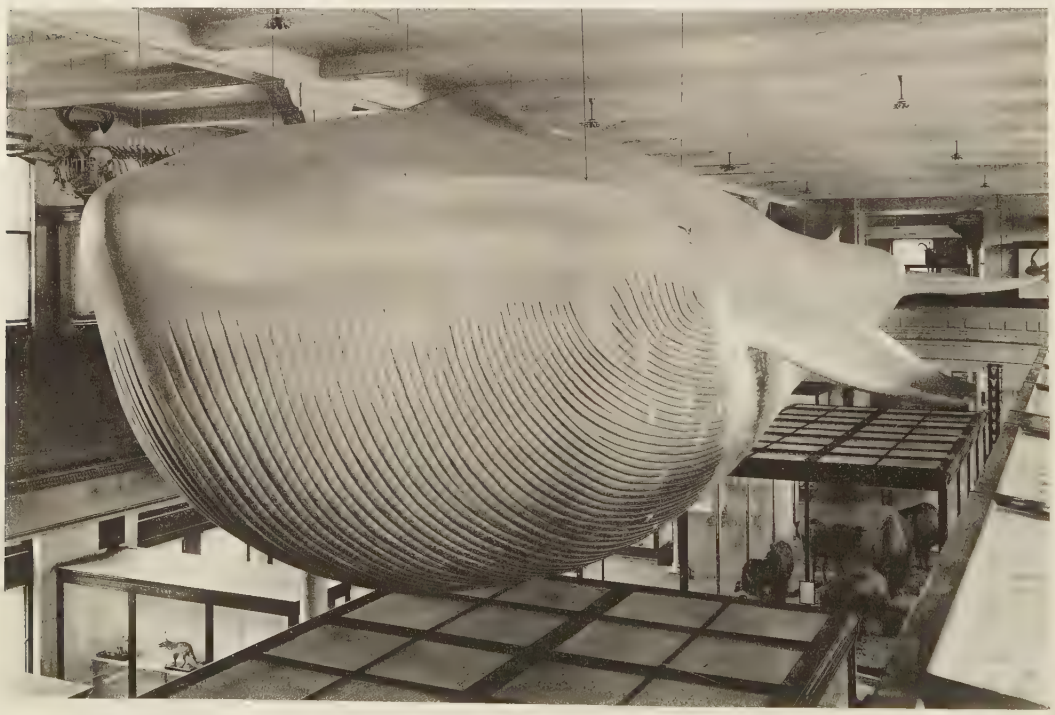


Fig. 11. Suspended like a big boat hung in a barn. The American Museum of Natural History.

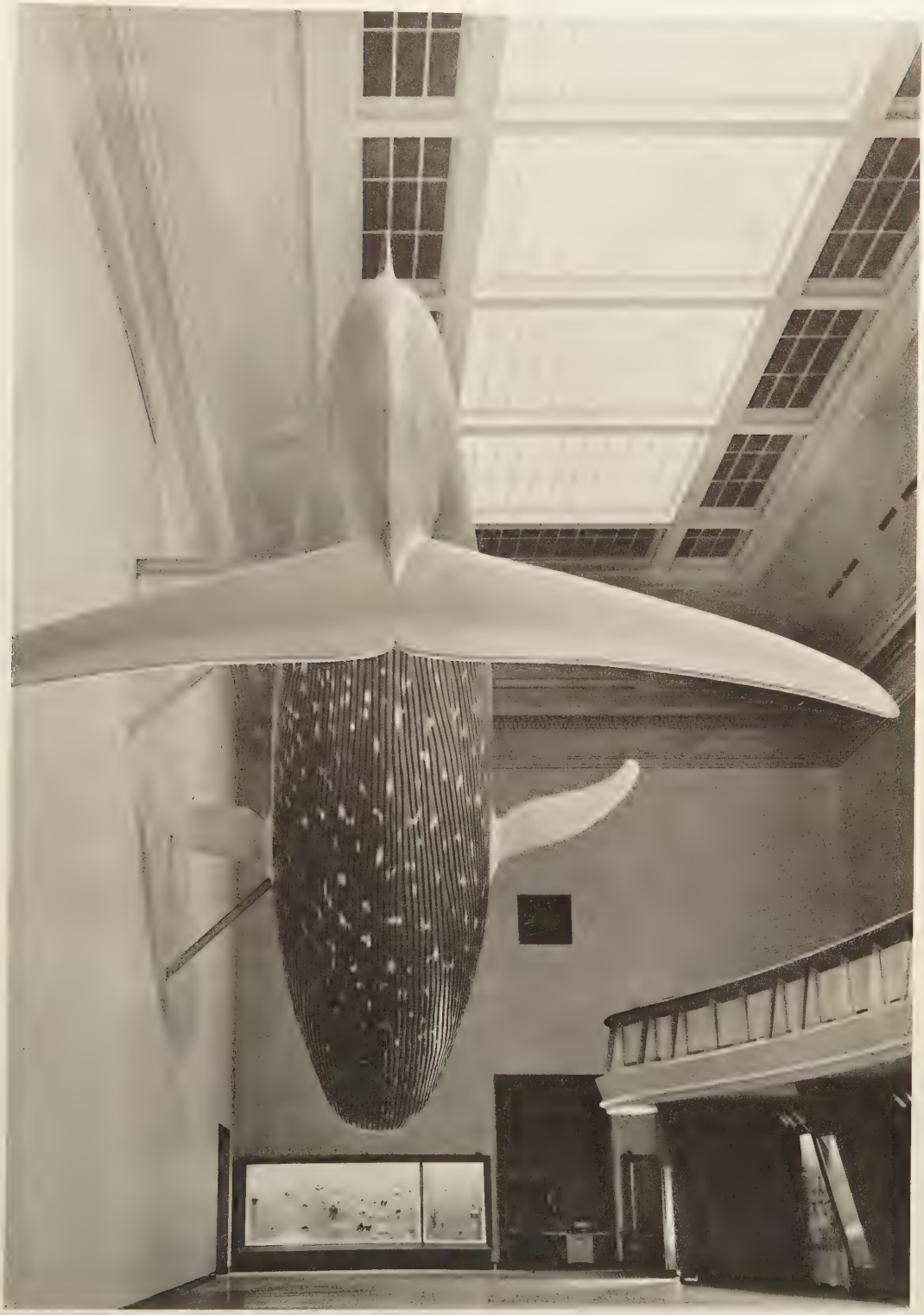


Fig. 12. Rear view of new whale in the United States National Museum.

Fig. 13. Frontal view of new whale in the United States National Museum.

letting the buoyancy of the water carry most of the load and have thereby become dependent upon the watery uplift to maintain the streamlined shape of even the most athletic members of their tribe.

When it comes to the larger whales, the museums would therefore seem to have realized from the start that the body of one of the monsters resting on the ground could not convey any of the grace and power of the swift leviathans of the sea, but rather an image of gross and feeble obesity, unless the evidence of a biologically important and historically interesting principle were falsely denied.

Jacobi, in his discussion of whale models, actually felt that even such a small and firm species as the porpoise would be too distorted to make a good exhibit, if a mold was made from a specimen resting on a dry surface. Jacobi went to considerable trouble to obtain a cast showing the true shape that this little whale holds in the water. But, without opportunity to display life-sized models of the large whalebone whales, Jacobi found it necessary to show miniatures of two of the beasts resting on shore, in order to establish the scale of reduction by the juxtaposition of human figures, which could not very well have been introduced in circumstances that would be more natural for the whales. Since the modeling of the miniatures was done with complete honesty, they also show the shortcomings of whales on land, suffering the effects of Galileo's principle from which they had found surcease at sea.

The museums that wanted to exhibit life-sized models of the giants therefore realized the necessity of showing them in their hydrodynamically suspended and not in their mechanically supported shape, letting the air take on the role of the water in the visual image. But pedestals holding an object up from below are not particularly helpful to the conceit of a body floating in space, and suspension from above therefore became the accepted method of installation as soon as it could be safely used.

Since unencumbered space large enough to suggest even the limited freedom of an aquarium for beasts of such size is rare, the total impression of a whale in the museum is one of conflicting images like those created by a large boat stored in a barn. The space might fit the dimensions of the carcass, but it did nothing to suggest a marine environment. It is one of the merits of the fine new installation of a "sounding" whale in the United States National Museum that it has finally broken this deadlock between unyielding architecture and unwieldy contents.

To create the illusion of having joined the whale in its own domain, or even of looking in upon it in its natural habitat, would obviously be impossible. Any attempt to suggest environment by treatment of the background would become a distracting and objectionable strain upon the imagination. But, instead of giving in and simply presenting us with another whale in a museum hall, as others have done before them, the designers, in

this instance, turned their attention from the impossibilities of the exhibit itself to the previously unexplored possibilities of its framing in space.

The hall itself has been remodeled into bold asymmetry. Along one side of its length the solid bulk of double-decked display housing rises and recedes, to counterbalance the plunging volume of the whale in the clear, rectangular space opposite. The gently curved shape of the second-tier balcony and its railing evokes memories of ships, without straining credulity by actual imitation of form and structure. The stairs leading from main floor to balcony, and from balcony up and out of the room, are unobtrusively reminiscent of companionways. By these, and other, gently suggestive devices the designers have very cleverly managed to imbue the space itself with a subtly nautical air that makes the whale, in defiance of all logic, seem a far more reasonable and attractive sight than it ever did before under a roof.

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Guests or Customers

by Albert Eide Parr

ABOUT THE AUTHOR: Dr. Albert Eide Parr, Senior Scientist of The American Museum of Natural History in New York, was born in Bergen, Norway. He was graduated from the Royal University of Oslo, received an honorary D. Sc. from Yale University in 1946 and an honorary D. Sc. from Colby College in 1956. Dr. Parr left Norway in 1926 to join the New York Aquarium where he remained until 1927 when he became Curator of the Bingham Oceanographic Collection. He was appointed Assistant Curator of Zoology and later Director of the Peabody Museum of Natural History. He has served as scientific director of oceanic expeditions, taking part in expeditions to the West Indies. Dr. Parr became Director of The American Museum of Natural History in 1942, and assumed his present position in 1959. He is past President of the American Association of Museums.

Text reprinted from MUSEUM NEWS MAY 1962

In the February issue of MUSEUM NEWS, *Dr. Joel F. Gustafson discussed the age-old museum problem, "To Charge or Not to Charge." Because we feel that open discussion on every museum problem will benefit the profession, we are pleased to present the following article that takes quite a different viewpoint from the one taken by Dr. Gustafson.*

I would like to state, in my opening sentence, that I do not believe in free admission to museums *per se,* but I do believe in free education. I further believe that a certain amount of museum service should be an essential part of our free educational system, certainly much more essential than many of the marginal subjects and extra-curricular activities that the taxpayers now pay for without a murmur.

The practical conclusion I draw from the premises of these beliefs is that every community should have at least one free general museum, or a set of museums covering the humanistic and the scientific subjects, and that these key institutions should be tax supported to the extent necessary to keep their doors open without charge.

This however, does not mean that any museum established in response to legitimate special interests or personal caprice would be morally justified in seeking relief from their financial pressures by appealing to the public authorities for economic aid. Nor do the institutions that receive subvention have the right to pad the bill with charges for functions and properties that serve only their private purposes or their pride of deed or possession, but do not contribute to the performance of the educational role in which they are subsidized.

If the community adopts the tenet that a minimum amount of basic museum expositions should be freely available to its pupils and its citizens, it ought to be more economical for the authorities to turn over to already existing institutions the task of providing for the agreed upon general needs of the public, in return for a reasonable supplementation of the institutional budget. Far from being jealous of the museums that have been designated adjuncts of the free educational system, their sister

establishments in the community should realize the advantages that the presence of the free institutions may bring to those that must make a charge for admission.

Relatively few people will pay a dollar or two to visit an art gallery unless they have already acquired a certain taste for art. A museum functioning within the domain of free public education offers a bridge across the divide between the uninitiated and the initiates, which may otherwise well remain an uncrossed border in the life of many individuals repelled by the "no trespass" sign of an admission fee. In other words, a good case could actually be made for having the museums that should and must charge admission jointly maintain a free museum in order to develop a growing demand for their own more costly pleasures, at the same time as they help to uphold our national ideal of free education for all within limits.

But why cross the river for water? Why not develop instead a rational pattern of designated free and subsidized institutions that will integrate their functions with the others for the mutual benefit of all? The question is simply: will they? The competitive attitude is so ingrained in the tradition of our museums that it is very hard to overcome. Their insistence upon showing what they want to show, regardless of the real educational needs of the community, often make established museums extremely unsatisfactory allies for the educational system to deal with. The net result may be that the community will, in the end, find it less costly to bypass all of the available establishments in order to create an entirely new facility for its wants.

Let us try to anticipate what would happen if all museums were to scramble for admission income, without any division of labor between them in regard to the essential services of free education. One of the most valid general criticisms of museum effort today is that it is too strongly directed towards putting on a show, sometimes even at some expense to intellectual integrity, and too perfunctory in its verbose concern over education. The more the museums become dependent upon the sale of tickets, the greater will become the pressure

to put on "best selling" shows in their exhibition halls. It would be very unreasonable to expect that this would not lead to an increasing neglect, if not outright betrayal, of educational principles in favor of entertainment values.

Museums that can regale the public with giant gems, million-dollar art, or space vehicles, could probably introduce substantial fees of admission without serious changes in their attendance figures. But an institution devotedly and primarily trying to teach the basic principles that each generation must learn anew, could scarcely do the same without drastic consequences.

I do not say that there is anything wrong with museums that principally function as places of entertainment. I merely say that when its performance is measured in entertainment value at the box office, the museum is no longer very likely to give a good answer to the true needs of education. I am also of the opinion that this is exactly what will come about if all museums are encouraged to charge at their doors whatever their deficits may require, which ultimately means all that the traffic will bear. To secure new and renewed support it is necessary to maintain a continuing need for support. Expansion to the limit of the means available is therefore essential in order to provide for further growth or even for the maintenance of the current scale of operation. Cultural institutions can accordingly not permit themselves the luxurious habit of saving for a rainy day, and must always suffer the consequences of recurrent deficits which will, sooner or later, force them to seek the maximum yield from every source of income.

The deleterious effects upon educational values that are likely to emerge from such increasing financial dependence upon admission income can only be avoided by the development of a philosophy and a system under which basic museum facilities remain freely open to visitors of all ages, while a reasonable price is exacted for admission to more specialized or advanced expositions, whether housed in the same establishment or in separate institutions. The basic museums I speak of are not simply the children's museums that have already stepped

into the breech between museums and education, although there is considerable indication that the basic museums of the future may develop from the junior museums of today. A healthy pattern for all can only be evolved by the joint efforts of all toward agreed upon goals, so that the needs of one will not be denied by the claims of another. A dog eat dog fight for survival at the box office would leave more victims by the wayside than victors at the end of the road, as the struggle for existence always does.

Among his supporting data, Dr. Gustafson mentions that "in Europe, nearly all of the museums have admission fees." I believe this is correct for the western continental countries south of Scandinavia. I have no information about the situation in the Eastern nations, but our popular habit of excluding England, sometimes Scandinavia, and, of course, always Russia from the precincts of Europe has not yet won the approval even of our own encyclopedists. A quick tally of "Museums and Galleries in Great Britain and Northern Ireland" (1958 Edition) indicates that out of 713 institutions only 193, or twenty-seven percent, charged admission four years ago. I do not have similar data for Scandinavia available, but it is my guess that more than half of the museums of the Scandinavian countries also offer free admission to the public.

The example just given bears directly upon regional differences of tradition and philosophy of education. A breakdown according to classification of museums would probably reveal even more interesting variations. Again, without actually having made a statistical analysis, I would venture to predict that such a study would show the following:

Historical houses, including palaces, castles, and so-called "open air museums" virtually always charge a sometimes quite substantial price of admission. Granted their great attraction for all of us, there is also another reason why they can confidently make the public pay. With the possible exception of Versailles, the homes of the famous and the infamous were all built to accommodate only limited circles of friends, functionaries and acquaintances. When they open their doors to all, they

are like small dippers in a big stream. They can be filled to capacity as often as desired, with no concern about the source of supply. Museums, on the other hand, are usually designed to receive the maximum number of visitors that can be hopefully expected. They therefore have to keep an eye on the level of the stream that laps at their doors, and watch that it is not deflected.

Among historical museums, the percentage of institutions with free admission would undoubtedly be small when all of Europe is considered as a whole, but it would be significantly greater than the entirely negligible number of historical houses that do not charge an entrance fee. Cultural history and native ethnography tend to be combined in a single establishment, while foreign ethnography is dealt with separately. A comparison between the practices of the domestic folk museums and the museums of alien or "overseas" people and their cultures would be of interest.

Drawing some very tentative conclusions from general impressions, one may suggest that the art museums of northwestern Europe have perhaps been approaching some such combination of institutions with free and with paid admission, as has been urged in the preceding. At least it seems fairly common to find within the same community one substantial free art museum along with several galleries demanding entrance fees. This, I believe, also describes the situation in some of our cities.

Without in any way minimizing their intellectual and other merits and values, one must be permitted to say that the zoological gardens and, in a slightly lesser degree, the aquaria have special motivational factors operating in their favor, that allows them to be less afraid of discouraging attendance than are most other institutions. One evidence of this may be seen in the public's indifference to distances that would keep them away from museums, but do not seem to deter their visits to zoos in times and places with far from convenient means of transportation. It is therefore not surprising that nearly all zoological gardens and aquaria in Europe confidently exact a price of admission.

We finally come to the museums of natural history which, today, unfortunately seem to have a much less strong "hold on the market" than their sister institutions in most parts of the world. This is shown both by their numbers and by their practices. When Brooklyn and Manhattan each had a natural history museum this was considered unjustifiable duplication, so the Brooklyn Museum restricted its activities to art in which the duplication with public museums and private galleries was, of course, many times as great. Similar illustrations can be in found in many parts of the world. I believe the institutions charging admission form a materially smaller percentage of the whole among the museums of natural history than among other museums. If we were to take size of attendance and size of establishment into account, we might possibly find that more than half of the grand total attendance and perhaps also a major portion of the grand total of natural history exhibits were free to the public also in Europe.

At this point we should introduce a distinction between token and substantial fees, on one hand, and between token and substantial admission incomes, on the other. Incomes must also be analyzed as gross and net earnings from the collection of entrance fees. Obviously, token fees from a large attendance entering at a single point of control may produce a substantial net income. Conversely, substantial fees collected from few visitors may result in only token contributions to the institutional budget, if not actual net losses. The definition of a "token" fee must be based upon average local per capita income and also upon a proper consideration of local spending habits. This is not the place to go into the complexities of the subject, but it is my opinion that nearly all the blessings of improved visitor behavior so rightly extolled by Dr. Gustafson will result from a token payment alone.

Perhaps, therefore, the distinction we should draw is not between museums that are free and those that charge a price of admission, but between museums that do not demand more than a token payment in earnest of serious intent, and those that exact a substantial price of entry primarily for

their own budgetary purposes. It is my impression that a great number of the European museums that do charge admission would fall into the former rather than the latter category.

Finally, I would like to offer some comments upon the situation in our own country. In 1951 I had occasion to gather some data for a similar discussion. Two or three examples may be of interest. A very large natural history museum at that time charged twenty-five cents admission on Mondays, Tuesdays, Wednesdays and Fridays. The free attendance on Thursdays averaged about three times the daily attendance on the three pay-days, and the free Sunday attendance was over fifty percent of the total weekly visitor count. A large historical museum in the same city chose to follow the opposite scheme of charging twenty-five cents on Sundays and holidays, only. Sunday attendance at this institution was only ten percent of the weekly total. In a very large natural history museum in another city, with no pay-days at all, the Sunday crowd averaged twenty-five percent of the total for the week. The three figures of ten, twenty-five and more than fifty percent would seem to speak quite clearly for themselves, but the full explanation is undoubtedly not a simple one.

The main purpose of these remarks has been to draw attention to the extreme complexity of the question of whether to charge or not, to bring out the interdependence between institutional policies, and to warn against the dangers of encouraging individual rather than concerted action within each community. Our attitude should not be that "cultural facilities cannot meet the competition for (public) funds with schools." On the contrary, we can and must rightly insist that these facilities are in a certain measure an integral and essential part of our free educational system, and should, in that measure, receive public funds to the extent necessary to keep such basic facilities freely available to all. Beyond these limits, admission fees would be entirely in order, but ought to be based upon over-all plans and principles rather than a general free-for-all. ❖

Test and Criticism

by A. E. Parr

Reprinted from

Museum News

October 1964

In recent issues of *Museum News*, Mr. Washburn, Dr. Borhegyi, and others have spoken of the urgent need to create a mechanism for the critical guidance of museum development by independent "outside" appraisal of effort. I wholeheartedly endorse the objectives to which the previously offered proposals have been addressed, but would like to present some thoughts about methods.

The totality of a museum presentation cannot be encompassed within the definition of any single category of artistic and intellectual endeavour. It embraces both science and literature, graphic and plastic art, architecture and interior display design, and, above all, the relatively newborn art-science of visual communication, which has a value system entirely independent of those whereby we assess the esthetics of art or the veracity of science. The effectiveness of communication is not measured by the beauty or ugliness, truth or mendacity of its message.

One will seldom find a single person capable of expressing competent opinions on all the conflicting aspects of museum performance. To discover a way of supplying our need for criticism we must first examine in more detail the full complexity of our problems.

It is often debated whether or not the critic should be bound by the artist's own intentions, and therefore free to judge only the method, failure, or success of the attempt to achieve a set purpose. In educational endeavours continual readjustment of ends is perhaps even more important than unceasing improvement of means, and critical alertness is as essential to progress in the selection of our goals as it is for the refinement of our skills.

The over-all intent of an exhibition program must be evaluated in relation to the educational and social needs of the public it serves, and each section must be judged by balancing the appropriateness of its qualitative and quantitative contributions to the pattern and purpose of the whole against the special merits of its own uniqueness. An excellent presentation of an esoteric subject or exquisite treasure that injects confusion into the general theme may well be criticized as evidence of frivo-

lous misdirection of effort. Carefully planned diversity, even to the point of abrupt discontinuities, is highly desirable at least in a large museum, but confusing inconsistencies are not. Disturbing imbalances and conspicuous, but unexplained fluctuations of emphasis are among the most common flaws of museum presentation, urgently in need of critical attention. Another one of the weaknesses that most frequently and seriously mars our show springs from a failure to keep its form and contents in tune with the spirit and demands of changing times and evolving history. But the constant assessment and reassessment of general exhibition policy, and of the variable importance of particular areas of knowledge, is not for the specialist on subject matter, whose affections are already committed to the discipline of his first love. Rather is it for the pedagog and educational philosopher to serve as critic of the general aims and balances of museum performance.

Another area of concern has to do with scholarship, adequacy and accuracy of information, validity of interpretation, and felicity of choice of illustrations and examples. This is obviously a broad field in which the work of specialists can be passed upon only by their own peers. But a word of caution is in order. Only a minority of museums are able to rely upon their own scholarship for guidance on the finer points of subject matter. Nor do the smaller institutions, as a rule, make any pretense of independent verification of the main substance of their tender. To expose the teaching in highschool and elementary classrooms to the kind of public criticism that can justly be applied to a major scholarly publication would be utterly demoralizing. We must not let the fact that even the smallest museum presents its lessons in public mislead us into encouraging methods of appraisal that would be completely unfair and unsound in their premises. Criticism of scholarship in small museums should probably, in ninety-nine percent of the cases, be aimed at the outside authority, read or consulted, and relied upon by the institution; and should not be addressed to its own staff. And yet it would be the staff that bore the

brunt of any public censure precipitated by their efforts, however innocent their own role may have been.

These remarks must not be taken as objections against public criticism of presentations or misrepresentations of subject matter by such institutions as The American Museum of Natural History, The Metropolitan Museum of Art, The Smithsonian Institution, The Art Institute of Chicago, and other establishments of which we can reasonably demand the wisdom and judgement of independent scholarship. As often pointed out before, the word "museum" is a generic term covering institutions of so many dimensions and kinds, that what is fair for one is not necessarily fair for another.

Public criticism of the stronger institutions would, of course, also provide indirect guidance for the smaller museums. But this would scarcely be enough to meet the need so rightly pointed out by Washburn, Borhegyi, and others. In similar circumstances, the creation of visiting committees has often been found very useful for the improvement of classroom teaching, and this seems a device better adapted to the needs of most museums than would be the services of *ex cathedra* critics. National associations might therefore well consider, as a regular feature of their services to the membership, the appointment of standing, or *ad hoc* visiting committees for new openings and periodic tours of museums on a national or regional basis. Suggestions for improvement and general comments should be offered privately to the institutions visited, with the exception that the committees should be free to call public and professional attention to any outstanding achievements from which other museums might learn. It is well known that improved performance is better attained by reward for accomplishment than by penalties for failure.

To the extent that museums are educational institutions it might, at first, seem pointless to invite purely esthetic criticism of museum display without regard to its effectiveness of communication. An exhibit of great beauty may teach very little, and we have all been exposed to very effective

forms of communication without any artistic merit. But these experiences show that the esthetics, as we conceive them, may in some cases (and to a considerable extent) behave as an independent variable of museum performance, and it is therefore also quite proper to take separate and explicit notice of esthetic qualities independently of the examination of educational effectiveness in the over-all evaluation of museum exposition. We now encounter another complication.

We have already seen how different aspects of critical appraisal will normally require the separate services of general "educationalists" and subject specialists. In literary criticism the scholar quite rightly feels free to comment both upon style and upon contents. The symbols of language are his own tools of expression, and he can speak with the authority of a craftsman about the workmanship of others. Verbalization is also the principal form of communication for the scholarly museum curator. When he speaks of artistic qualities in visual presentations he does not, except in rare instances, speak with a training, experience, or insight similar to the qualifications that lend weight to his opinions on a written exposition. We have all overheard curatorial verdicts upon exhibition design on the bland order of "I like (or do not like) alcoves." For purely esthetic judgements we may therefore have to add still another member to our team of critics. Neither the pedagog nor the scholarly savant will do, except in very rare cases.

There now remains the most crucial of all questions involved in the evaluation of any educational presentation: Does it communicate? Fortunately, effectiveness of communication is capable of being assessed by fairly simple and objective methods in the realm of applied psychology, so that there is no need to rely upon the pontifications of self-appointed or reluctantly impressed critics giving vent to verbal athletics or earnest introspection, but not to verifiable facts of impersonal record.

The adaptation, perfection, and standardization of procedures for the specific task of measuring the effectiveness of visual education by means of museum exhibits would require some study and ex-

perimentation, although the basic methodology has already been developed to a high degree of sophistication through application in other fields of inquiry. If a national organization would undertake to sponsor such a study, I am confident that both the funds and the talents needed for the purpose would quickly become available, and it might prove to be one of the greatest blessings that any organization could confer upon the museum of the world today.

An adequate process for the objective appraisal of communication, combined with a visiting committee's frank, but gentle and constructive advice on the validity and significance of factual information, theoretical interpretation and sample selection, and on the artistic quality of design, should be able to meet all the complex needs for museum guidance, which cannot possibly be fulfilled by appealing to a single source of critical competence. And such a combination should be able to function effectively without striking fear into the heart of anyone, but raising the hopes of all. ❖

THE WAY I WRITE

by A. E. Parr

Dr. Parr, Senior Scientist at the American Museum of Natural History, in New York City, is well-known for his many literary contributions to the field of museology. His formula for writing successful articles is disclosed here for the museum worker who writes

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Reprinted from

Museum News

VOL. 44 NO. 2 OCTOBER 1965

The Journal of the American Association of Museums

To write in a more or less literary manner about our thoughts and actions is not the normal occupation for most of us who work in museums. What creative talents we may possess find their principal outlet in other directions. As designers, administrators, curators, photographers, and in many other capacities, we are confident of our professional standing. But we suddenly feel a strange loss of status, when we turn from the preparation of scientific papers, administrative reports and recommendations, or artistic exhibits, and attempt to use the written language as a medium of self-expression, rather than a dry and impersonal instrument of factual communication.

Trying to share our personal philosophy and accomplishments, instead of merely relating our observations of things external to ourselves that do not reflect upon our own worth except by the astuteness of our perception, we become apprentices to the writer's trade rather than masters of our own, and tend to lose confidence thereby. As a result, excellent ideas and innovations remain unexpressed, undescribed, and unknown to the many who could have benefited by their influence and example, while becoming familiar only to the few who enjoy the advantages of direct contact with the source of these advances in the evolution of our purposes and methods.

It would be highly desirable if one could find ways of breaking down the reluctance and embarrassments with which we meet, or shy away from, the challenge of communicating our best thoughts and accomplishments to our colleagues in the museum world via the printed word of our professional publications. As a small contribution towards this goal it has been suggested that I prepare a tract on how to write an article. But this I could not do. I do not know how an article ought to be written. I only know how I do it myself. Hence the caption I have used, hoping that it will be read as

a title pretending to less, not more, than a proclamation on "How To Write" would presume. It seems unlikely that these confessions should disclose anything not already well known to the reader, and thoroughly tested by him. But, if one or two should find encouragement in the struggles and stratagems of a colleague, it will be sufficient reward for having wrestled once again with the perplexities of occasional writing.

Some years ago the opportunity came for me to develop and express ideas that had previously been laid aside under the pressure of more urgent demands upon my time. One of the first things I then discovered was that some of the personal theses I knew I had cherished in the past, and thought I had safely stored away in my memory for future use, were no longer there at my command. Without a written note to remind me of their substance, I could almost as well have buried them in an unmarked grave. But not quite. As I worked with the propositions that I more readily recalled, others would slowly re-emerge from the subconscious, a bit now and a bit then, or suddenly complete, but always with a great waste of time and effort that could easily have been avoided.

If anyone should wonder how it is possible to know that I have forgotten things that I cannot remember, the answer is really quite simple and familiar to all of us. I may, for example, have a perfectly clear recollection of having worked out in mind some general principles that ought to determine and explain the differences between bookpage text, written label, and spoken comment, and may still be totally unable to recall anything about the postulates that once pleased me so much.

While the recovery of lost theories and concepts was slow and laborious, but most often successful in the end, I found it virtually hopeless to attempt to recapture forgotten analogies, metaphors, and sentences that once seemed happily appropriate to my reflections upon a theme.

Perhaps these difficulties are peculiar to myself and not shared by most of my colleagues. But it is probably not uncommon to find capricious memory holding on to the utterly insignificant, while letting the most usable ideas escape. In any event, my own experience after more than twenty years of administrative duties, soon taught me not to let any reasonably presentable phrase, simile, hypothesis, or synopsis of a topic pass unrecorded through my mind and out again.

We have all heard about the accumulation of apparently unrelated notes as a practice among professional writers, but tend to brush it off as not being for us, who only write when we have the time, and feel a special urge upon us. But the danger of loss may actually be less for those whose minds are on their writing all the time, than it is for us who can only attend to our penmanship between other chores.

When I began keeping pads within reach at all times, and particularly by the bedside at night, things soon reached a state where yesterday's thoughts were hardly any easier to recover from the hoard of my notes than from the recesses of my memory. The next step was, therefore, to prepare a descriptive list of the many topics that kept tumbling around in my head, assigning an identifying number to each. The random notes were then sorted and transcribed to standard 8½ by 11-inch sheets, carrying the apposite subject number in the upper left corner. It did not take very long before three one-inch loose-leaf binders were filled with such sheets under thirty-five separate headings. Two of the numerical captions are generic, with many subheadings in each. Number thirty simply stands for Short Subjects, and number thirty-five for the entire field of Environmental Psychology, including visitor responses to the museum environment. Each of these two broad categories has a subindex of its own. The thoughts and sentences that

often come when least expected are now promptly entered and allowed to accumulate where they belong, and can easily be retrieved. Under this system I find that a theme may grow and mature for presentation in any one of three different ways, largely dependent upon how the subject first came to mind.

Often the start is made by becoming aware of a personal point of view which, rightly or wrongly, appears to place an entire subject in a fresh perspective, and therefore conceivably might provide a new and slightly different insight into its structure and dynamics. In such a case the first entry in the notebook is a terse but fairly complete skeleton outline of an article, in the form of an indented index showing the hierarchy of arguments to be developed and points to be made. But there is neither phraseology nor illustrative examples at first. These are the elements that must accumulate in the notes of later reflections upon the subject.

At other times a text seems to evolve by organic growth from a central concept or reaction, as a tree grows from seed, My first notes will then generally take the form of a fairly detailed description and critique of an event, an observation, or a confrontation of ideas that launched my train of thought. The additional notes and amendments that accumulate in the course of time all come as extensions and amplifications of the initial reflections, and will, therefore, nearly always fall naturally into a logical pattern, which often requires comparatively little rewriting at the end. Themes that develop in this manner escape both the bare skeleton stage of those in the first category, and the odd assortment phase of the third group. There is always a recognizable order, and always some meat on the bones.

In the pursuit of one subject our mind often digresses to reach some minor conclusion in another field. Our eyes, looking for evidence or illustrations for a certain point of view, may notice in passing something quite irrelevent to the search of the mo-

ment, but very interesting in itself and potentially useful in other contexts. These byproducts of our prospecting for other treasures are the golden nuggets most easily lost from memory, and should therefore be carefully recorded while still remembered. By so doing we build up a collection of disconnected selfcontained notes that form no sequence, and do not fall into any recognizable pattern. All one can do at first is simply to classify and assemble them under broad general headings such as "Skeletons," "Entrance Lobbies," "Window Display," etc. In a year or two occasional inspection of the sheets will begin to reveal enough material for one article after another. It may be of interest to point out that this third method of preparing a manuscript completely reverses the order of proceedure followed with compositions that fall into the first category. We do not start with a design for which we must gather suitable material. Instead, we first acquire an inventory of miscellaneous facts and ideas that we must ultimately try to weave into a coherent and meaningful design. The first style of effort gives the greatest satisfaction in the work itself, but the third way of developing a theme holds more pleasant surprises in store, after the manner in which the value of our uncalculated savings always seem to take us by surprise, when they are added up.

The three methods that have just been described are, of course, not mutually exclusive, As the work progresses the *modus operandi* may change from one style to another. When a pattern has been devised that will give significant shape to a bundle of notes, it may be found that some additional material is still needed, and this will be looked for as in the first category. Organic growth may extend in so many directions that some reorientation and refocusing is needed; and so on. But, in most cases, I find that one method or another has exerted a very decided predominance in the history of any partic-

ular piece of writing. Long articles, and articles with emphasis upon philosophical contents are usually products of the first method. Examples taken from my own experience are listed as (1) to (4) at the end of this article. The central, germinal idea usually results in shorter anecdotal or interpretive compositions, such as (5), (6) and (7), but may produce longer ones, particularly if they are contributions to debate (8 and 9). The accruals of the third method tend to become primary sources of material for reportorial, historical, comparative and analytical endeavors (10 to 14).

Although the accumulation of details has been mentioned, the preceding remarks have been mostly concerned with the over-all form of presentation. Regardless of the manner in which an idea grows and develops, and regardless of the general mold we cast it in, our ability to communicate will always be largely dependent upon minor particulars of language and other elements of exposition. In the free moments when we ponder upon the topics in the notebooks, we should search our minds for the following ingredients of discourse. (A) Concrete examples for the clarification of abstract concepts and of judgements based upon general principles. A discussion of the architectural needs of museums (9), or an evaluation of the use of mood in the style of exhibition (15) is always in danger of becoming rather nebulous, if there is no reference to intentional or unintentional demonstrations of the tenets we wish to express. It is usually while thinking of verbal illustrations that I also find it easiest to recall from my memory, scenes, once seen, which might provide good pictorial supplementation for the text. Such prospects should also be listed as the second type of desiderata (B) for entry among the notes, and I strongly recommend that photographs or other graphics be secured as soon as the possible usefulness of some pictorial subject comes to mind, without waiting for the

final stage of preparing a manuscript. It may take a long time to get such figures for your use, and they are rarely wasted in the end, even if they should not be used as first intended. A third type of treasure to be hoarded in the notebooks consists of (C) suitable similes and metaphors for the proper flavoring of the final text. These, in my experience, are the components of writing that often choose the oddest times and circumstances for making themselves known, as, for instance, when I may be rushing to catch a train with no thought of literary effort. They are therefore the elements that it may take the most determined effort to capture on paper before they are lost again. The fourth order of notations (D) is simply made up of single sentences that seemed to me especially pungent, clear or euphonious, and pertinent to some particular aspect of the subject in view.

Under normal circumstances I avoid settling down to the final task of writing a manuscript until I have accumulated many more thoughts, analogies, pictures, and key sentences than I can possibly use. Only then will I be able to enjoy the exercise of selectivity in the composition of my theme. And only then do I lose my apprehension of possibly taking a position which the arsenal of my reasoning may prove inadequate to defend. However, circumstances are not always normal, nor are they always favorable. And when they are not, my experience merely confirms my belief in letting my topics age in their binders for at least one year, if not two or three or even more, before extracting them from their covers for final treatment and assembly. The account of my writing habits that you are now reading has not been given the time to ripen that I would usually allow, and I can only hope that it will not too clearly show the marks of neglect.

It is perfectly obvious that notes jotted down at different times, and often without direct reference to each other, will not fit together like the pieces of

a jigsaw puzzle. They must first be selected and arranged in their proper sequence to form a coherent dissertation, and must then be modified and adjusted to form a fluent text. The task is now down to vocabulary and details of phraseology.

Before giving other examples it may be of interest to mention that the next to the last paragraph before this one appeared complete in my notes long before any of the actual manuscript was written. But one adjustment was necessary. In the notes the penultimate sentence ended with the phrase "before *hauling* them out for final treatment," etc. When placed in the proper sequence, this expression became too colloquial for the tone of the surrounding text, and had to be changed.

Under a different heading I find the following two entries:

"The habitat groups are like the flowers on the table (centerpiece, table decorations). They are there to make the meal more memorable (enjoyable), not more filling," and:

"Habitat groups should be used as seasoning for the educational meat of the exhibition program, not as the main course. Meat without seasoning is pretty dull, but seasoning without meat is not very nourishing."

Here is a choice of two similes. When the time is ripe, select the one most fitting and keep the other for another occasion. Sometimes you may even find a good use for two at the same time. I just did! And sometimes you may discover that you have half a dozen to choose from, when you finally begin to prepare your manuscript.

The first analogy also shows another very useful feature, namely an alternative vocabulary. When this occurs to me as I first record an idea, I enter the other words between brackets, but I still leave an empty line after any slightly complex phrase for other choices of wording that I may think of later, while going through my notes. In this connection it is always desirable to have a good Thesaurus avai-

lable. I cannot recall having found a word in the Thesaurus that I did not already know, but, when I am stuck, it helps me to find the word today, instead of having to wait until I happen to be reminded of it next week. However, the main task of finding the best word to use will always remain your own, and it is very dangerous to place too great a reliance upon the word-lists of others. The field of choice is commonly not limited to synonyms, but may include words of different connotations that may, nevertheless, be equally useful for your purpose, because our words merely identify rather than describe an idea each time it is mentioned, and what aspect of the thought is used for its identification may therefore be only a question of linguistic style.

By jotting down lists of words and expressions that are interchangeable in the specific context in which you intend to use them, although they need not all be synonymous in a general sense, you are able to shun the endless and tiresome reiteration of a single term, or two, that is otherwise so difficult to avoid when addressing yourself to a restricted subject, In this article on how I write an article the word article could so easily become obnoxiously boring, as this sentence is meant to demonstrate. On the pages preceding this paragraph I find that it has been necessary for me to relate my comments to the end product of the act of writing some thirty-five times, either by direct statement or oblique reference. The concept of "a text" has been introduced through the implications of the following nouns and expressions: Printed word, – tract, – article, – report, – proclamation, – dissertation, – thesis, – proposition, – field, – discussion, – evaluation, – text, – theories, – concepts, – thoughts, – compositions, – topic, – piece of writing, – subject, – theme, – contribution, – endeavor, – exposition, – discourse, – manuscript, – confessions, – presentation, – point of view. These are not all synonyms of

"text," or of each other, nor are they all interchangeable wherever one of them is used. Many of them do not say "theme" at all, but each in its own particular context should suggest the general idea of a piece of writing. And, even with all of this, the word "article" occurs five times before it makes its four appearances in this lengthy paragraph.

The second advantage of having a generous selection of suitable words to choose from is realized in the final rubbing down of the manuscript to give it mental and verbal rhythm to fit your taste. There may be differences of opinion about the importance of this aspect of writing. But for many readers both the cadences of concepts and of clauses may strongly influence the effectiveness of communication. And the reactions of those, who do not care, will not be lost or even significantly affected by what you do for the others, so you have nothing to lose and much to gain by paying close attention to your phraseology.

The comments I have just offered do not in any way suggest that you should try to give your exposition the tone of a prose poem. Nothing could be more tedious. Nor should all sentences be equally smooth and firm. This could only yield a pompous and monotonous uniformity of texture But in every paragraph, and in most periods, I find at least one key sentence that should be as carefully designed and finished as I am able to, within the linguistic limitations and difficulties of the subject matter, while the matrix of the surrounding text will actually serve better by being more casually prepared.

I have, unfortunately, not kept the work sheets of my previously published papers, and this little essay does not seem to offer the best examples of the functions of word selection, so some rather minor instances will have to serve the purposes of this discussion.

In the second half of my second paragraph I

mention "the astuteness of our perception." If I did not, at this point, find it useful as an illustration, I might have deleted the entire expression. In my notes the key word was "acuteness," with astuteness, brightness, and acumen in parenthesis. To me "acumen" would break the verbal rhythm, and "brightness" would clash with the predominantly latin roots of the surrounding sentences, in spite of "worth" and "trade." But "acuteness" and "astuteness" have exactly the same rhythm and the same origin. In this case the selection, which changed the original wording of the clause, was made because it was felt that "acuteness" would be mentally out of step with the reasoning at this point, giving to the perception that is mentioned, too much of a sensory rather than intellectual cast, When I actually make the choice of a word, I do not, of course, go through this lengthy analysis, which is merely offered as an explanation of why I choose as I did, and not as a recommended procedure that would consume endless amounts of time.

What I do is simply to read through my text a number of times, with days between. Whenever I get a feeling of stubbing my toe as I go along, I scrutinize very closely the offending paragraph and the nearest preceding pages as well. Maybe I only need a monosyllabic word instead of a polysyllabic one, or *vice versa.* Or I may have stumbled upon a break in style, a redundancy, a subtle distortion of a line of thought, or simply something that does not quite fit my own peculiar taste in writing – all of which may be due to a single word or expression that is not right for the place I have given it.

The caption of this little treatise may serve as another example. I first called it "How I Write," but I kept tripping over the title each time I returned to it in my mind. It seemed slightly out of key, both phonetically and in the finer shades of meaning. Just imagine an exclamation mark added to the words. And so it became "The Way I

Write," which seems to roll easily off the tongue without giving rise to any mental hesitations, at least not for me. As it now reads, the title also contains an element of alliteration. If you like it, as I do, this can be a very rewarding device of your literary style. The alliterative effect of "memorable" (in "make the meal more memorable"), is undoubtedly what made me instinctively relegate "enjoyable" to a place of second priority, between brackets, on the first metaphor about habitat groups quoted above, although "enjoyable" would seem more appropriate to the sense of the remark. It also gave me considerable satisfaction to use "Mind and Milieu" as the heading for a bit of writing published elsewhere. If alliteration appeals to you, it becomes all the more important to accumulate alternative vocabularies in your notes.

If by selection, alterations, and repeated scanning of the text I finally reach the point where I begin to like what I say, it does not necessarily mean that my piece is well-written. You may, for instance, completely disagree with my treatment of the examples I have given, and with the entire composition of this little article. But, until the flow of my discourse at least fits my own rhythm of thought and silent sound, it is highly unlikely that it will fit the mental pattern of anybody else. I therefore try to persevere till I feel as comfortable with my words as with the handles of old and well-worn tools. If I succeed in making the language reasonably agreeable to myself there is, at least, a very good chance that it will also seem right and natural to a few of the readers, as well.

What the occasional author needs most of all is patience and persistence in searching for the best word. Writing on the installment plan of the loose-leaf binders gives us the leisurely pace for both, without ever reminding us how much time the task actually takes before we finally accomplish our purpose.⁂

Articles by the author, used as examples:

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"Dimensions, Backgrounds, and Uses of Habitat Groups," *Curator,* Vol. IV, No. 3. New York 1961.

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Reprinted from

" STUDIES IN MUSEOLOGY "

Volume II, 1966

A. E. Parr

YESTERDAY AND TOMORROW

In Museums of Natural History

Museums were born of the aquisitiveness of the mighty who gathered their hoard from the gains of trade and the spoils of war. As the collections grew, pride of ownership sought broader and broader outlet for parading the treasures before the eyes of the envious. The curio-cabinets in palaces and mansions, that could be admired only by friends and invited guests, became separate establishments which might still be privately owned by a single person, or privately operated by an association of individuals with a common interest.

The continuing accrual of objects of all kinds also led to a need for professional experts to care for, identify, evaluate and keep order in the collections, which had expanded beyond anybody's capacity to look after in his spare time and to account for from memory. The engagement of curators as vicarious caretakers and collectors for the owners and governors of the evolving museums could not avoid diluting the pleasures of amateur collecting, thereby hastening the shift of lay motivation from pride of posession towards pride of display. The trend was also accelerated by the fact that physical limitations made it more and more impossible to place the entire hoard on view at any time, or ever.

With the act of collecting offering diminishing psychological rewards, and the wealth of collections incapable of being shown, the ambitions of those performing the functions of proprietorship naturally turned, for new sources of prestige, to the quality of exhibition, as an art in itself, and to the worth of the limited selection of objects that could be presented, rather than the quantity of the treasures in storage.

This reorientation of focal interest among the rulers of museum destiny, would seem to have affected the galleries of art and the museums of science in rather different ways. In the former, simple logic suggests that the art of exhibition must always play second fiddle to the art it exhibits. The emphasis therefore fell upon contents, rather than manner of presentation. Authenticity became a prime consideration, sometimes appearing to outweigh esthetic attributes. And the changed outlook certainly provided a very fertile ground for the masterwork concept in art collecting even if it did not directly foster the idea.

In the natural sciences many of the " real objects " do not lend themselves to exhibition at all. They may be of invisible size, or of a delicacy that makes

it impossible to preserve them in a recognizable form. Others could only be pickled for lugubrious displays as sad looking corpses in bottles of alcohol or other liquids. The more delectable embedding in clear plastics came much later. In the museums of natural history the ascendancy of pride of display over pride of posession did therefore not lead to a greater stress upon the values of the genuine article, but, quite to the contrary, opened a welcoming door to the arts of false imitation by which the unpresentable could be represented in facsimile.

As the arts of nature-faking developed to magnificent heights of beauty and illusion, exhibition in the biological subjects became less and less dependent upon the museum's permanent collections, until it became a common practice among the leading institutions to disregard the entries they might find in their catalogues, and send out new expeditions to gather fresh material and observations for display and imitation in new expositions showing nature more in effigy than in substance. Under the new dispensation it was unavoidable that the scientific curator should experience mounting frustrations and diminishing interest in the display functions, which were increasingly dominated by benefactors and separate exhibition staffs.

The sportsman does not have every bird in his bag mounted as a decoration for his den. When selection for display became a practical necessity, the governors and friends of the museums were already quite familiar with the process as an old domestic practice of their own. It was only a matter of extending into wider fields habits of long standing at home. No wonder, therefore, if museum choice and trophy-room selection often seem to have been guided by the same principles, with maximum impact rather than maximum communication the measure of success. Educational opportunities were often set aside in favor of presentations identified with personal exploits or predilections. There are still many museum halls nominally dedicated to the nature of a country or a continent, but actually devoted mainly or exclusively to the glories of the hunt, with little attention paid to other aspects of nature as a realm in itself, or as the environment of man.

In the beginning, when collections and exhibits were one and the same, some previous knowledge of the value and attributes of the objects to be seen was required for any real enjoyment of a museum visit. Broad general attendance was not encouraged. Admission was often limited to members and guests of the learned societies responsible for the maintenance of the museum; and children were rarely allowed.

When the arts of exhibition rather than the value of collections became the primary source of prestige for natural history museums, the spectators' applause for the show became more important than the expert's admiration of its contents.

The doors opened wider in invitation to the general public, and their visits were actively encouraged.

Soon the visitors who came to discover a world of knowledge and delights previously unknown or unappreciated by them, began to outnumber the ones who dropped in to enjoy the sight of things already known and valued. This change in the make-up of their audience brought the museums face to face with an opportunity and, therefore an obligation to educate, instead of merely catering to the tastes and interests of the educated. It was no longer enough to continue in the relatively passive role of repository and showplace for cultural and scientific treasures. The exhibits themselves must be designed as effective tools of visual instruction beyond mere recognition of the objects presented; and education for the general public became an explicitly stated principal function of museums, along with collecting and research. And it was not long before new museums were founded as teaching institutions for the young, without any acknowledged obligation to conduct original investigations, or to collect and preserve beyond the needs of their pedagogic activities. Many of the older and larger institutions began to supplement their curatorial organisations by the appointment of a separate educational staff, and children were admitted everywhere, even into the august precincts of the art museums.

In spite of many admirable new features in their expositions, the concept of museums as primarily educational establishments, similar to the universities, is even today more fully and clearly expressed in festive speeches and fund appeals than in the realities of exhibition halls. Didactic needs have been allowed to influence the form of presentation to a very considerable degree, but the priority values of a balanced and significant educational program are still given scant consideration in the selection of subject matter, particularly in the biological sciences. Importance is often measured by distance rather than proximity. The rare and unlikely are frequently given more prominent attention than the exhibits bestow upon the need to recognize and to understand the circumstances and events of daily life.

The natural history museums of today are at the crossroads. Some have disappeared, even while others are being born. Many have declined in community standing and in their status among cultural institutions. Their expositions, in the traditional vein, offer little relief from the pressures of world problems, and less help towards their solution. Their hold upon the adult population has been weakened accordingly, and a few have actually been replaced by museums explicitly dedicated to the children. Many are torn by inner conflicts between collections and exhibition, research and education. Perhaps cooperation in friendship, rather than mutual frustrations in wedlock, offers the most promising future solution for this dualism of purposes that so often seems to impede museum

progress. An organisational divorce between research with its collections, and education with its exhibits, has already been suggested more than once. Architectural separation within a complex of buildings, or even entirely apart, is certainly the indicated physical form of the natural history museum of tomorrow, whatever its pattern of organisation may be. The brilliantly conceived plans of Alejandro Caso, Margarita Chavez de Caso, and Jorge Stepanenko (*Curator*, IV, 4, p. 341, 1961) still await execution somewhere.

While the older institutions are struggling to overcome the handicaps of their inherited attitudes and traditions, new ones are constantly being created. In the natural sciences one can confidently say that the newborn establishments are more blessed than burdened by their lack of collections, which leaves them free to concentrate upon service to the community, without self-serving display of their possessions. A clear realization of this advantage is usually reflected in the declared aims and policies of those that meet with the greatest acceptance and success.

The natural history museums of tomorrow must set as their goal to help the people they serve towards a better understanding of themselves, their natural opportunities, hazards and limitations, and their relations with other people facing similar or different problems in their struggle for existence and for a fuller life. The exhibition programme must be designed to meet the demands of this mission, not simply to make use of existing collections. The museum that has an important message to convey is not going to find it very difficult to obtain the objects and other means required to communicate its lessons by the visual methods of museum exposition.

Reprinted from

" STUDIES IN MUSEOLOGY "

Volume II, 1966

DEPARTMENT OF MUSEOLOGY
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Location, Motivation, and Duration of Museum Attendance

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THE AMERICAN MUSEUM OF NATURAL HISTORY

In our era of cultural competition, with growing reliance upon the mass media of visual education, new museums are being planned and created on an unprecedented scale, and less is being taken for granted about their design, placement, and functions than ever before, although the faith in their purpose may never have been stronger. In the discussions of future projects now going on around the world the question of proper location seems to become the focus of more inconsistent logic of reasoning and apparent conflict of evidence, than does any other aspect of the complex task of planning a museum.

The problem has many ramifications, but at the bottom of the confusion lies the uncertainty about how to evaluate the impact of automotive means of transportation upon the relationship between the museum and the public it serves. Stated in the simplest possible terms, the issue may be defined as a choice between so placing the institution that it may serve as an attractive goal for special outings or putting it where it will invite the maximum number of casual visits that may become habit-forming and will facilitate frequent use of spare moments for return visits.

If the main purpose of the establishment is to serve as a tourist attraction there are some indications, for example in the Danish experience with Kronborg Castle and Louisiana, that remoteness and inaccessibility may actually be an advantage, offering a challenge and an opportunity for travel agencies and adventurous individuals to arrange exciting excursions with a commendable destination as their goal. Although few authorities will publicly recognize tourism as the principal museum business, informal debates indicate that such considerations may, in fact, often be the deciding factor in providing for a museum's present or future ex-

istence. The difference between in-season and off-season opening hours and admission charges found in many parts of the world also suggests the rather depressing thought that the cultural benefits offered by these institutions may have become export items rather than commodities for home consumption.

As a general rule, it may be taken for granted that the traveling public will find its way to the exhibits, wherever they may be, if their contents and message are of sufficient importance to stand on their own merits. When added incentives are needed, distance may prove a spur to curiosity, lending a mild sense of adventure to the thought of a visit, although central locations have certainly not been proved a tourist handicap to many of the world's great museums.

Classes of school children, attending in a body, have many characteristics in common with bus loads of visiting tourists. The trip is, in both cases, not altogether the result of individual initiative only, but involves a certain degree of coercion, from acceptance of imposed limitations of choice to entirely compulsory participation. Both groups arrive by their own means of transportation, bringing them directly to the door. On first thought it might seem as though the problems and consequences of location would be the same for both categories of museum visitors. But neither the tourist nor the travel agencies are accountable for the pedagogic yield of their scheduled activities, while the schools have a responsibility to see that maximum educational results are obtained from each hour spent under their guidance and supervision.

What little information we have from quantitatively adequate investigations would seem to indicate that an hour spent among exhibits may not be less effective than an hour spent in the classroom, but neither is it demonstrably more productive of new knowledge among the pupils. These particular studies have not concerned themselves with the possible reinforcement of already previously acquired knowledge, or the effects upon motivation and attitude toward a subject, but other investigations dealing with the general public do not warrant any confident assumptions that museum halls will score much higher than schoolrooms in these aspects of mental development, either, although one can still be permitted to hope that they may. According to the evidence now available it is therefore only permissible to equate museum time with school time in an approximate ratio of one to one. This, in turn, makes the proportion between travel time and time actually used in contemplation of museum expositions a prime consideration in trying to evaluate the pedagogic gains to be made by bringing a class to the museum.

There are those who believe in the superior value of short but frequent exposures to any subject taught, whether visually or verbally. Others recommend continuous concentration separately on each subject for

fairly long periods, be it a day or a month. The superiority of one method over the other probably depends upon age and attention span, degree of motivation, nature of subject, and amount of distracting or reinforcing elements present in the external circumstances in which the studies are carried on. When we consider elementary school classes on an exciting trip to a museum, nearly all of the factors that have just been mentioned would seem to favor the practice of short, but frequent visits. But, on the balance sheets of educational return per hour invested in the effort, such a scheme becomes more unprofitable the greater the distance that must be traveled to reach the source of visual education. If it takes the class an hour and a quarter to make the trip each way, to get organized for the voyage and reorganized after it, to spend only half an hour absorbing some particular facet of the museum's message, it means that three hours of school time have been exchanged for half an hour of museum time, which has not yet been shown to be worth any more than thirty minutes spent in the classroom. We may still hope that museum time may ultimately be shown to have special merits beyond equal time in school, but it would be ridiculously presumptuous to try to claim a six for one ratio, when even simple equality is none too firmly proved. In addition to these considerations we must also acknowledge that the excitement of the museum trip will usually have substantially reduced the teachability of the pupils for the rest of the day, if a resumption of classroom routine is attempted before dismissal. In view of all this, it is obvious that the concepts of short, but frequently repeated attendance, and the desirability of picturesque placement, peripheral to the center of population, are in complete contradiction from any realistic point of view. In the discussion of museum plans it is, nevertheless, not unheard of to find both ideas advocated simultaneously as though they were complementary and not antithetic to each other.

For remote institutions, and these include even the centrally placed establishments of megalopolitan communities, the obvious answer is to be found in the educational *modus operandi* of offering programs for a full school day at the museum, rather than schedules of single lectures, or suggestions of special topics and displays to be covered during short visits. The extent to which a museum day, instead of a museum hour, represents the unhappy compromise of a lesser evil will depend upon the amount and degree of variety the museum can offer its visitors.

Not even the most ardent advocates of quick nibbles at knowledge have suggested that school attendance be reduced to a short visit each day. What, rightly or wrongly, saves the schools from any such proposals is the variety of topics they are able to offer in quick succession in the classroom. For museums so located that their effectiveness becomes dependent upon their acceptance as adequate goals for a museum day, comprehen-

siveness rather than limitation of coverage becomes a prime asset. It would be very difficult to think of a class of young children spending a day in a museum devoted exclusively to mineralogy, or to porcelain, or to stone-age archeology, without quickly losing interest and becoming bored before the end of the first hour. Broadly stated, the need for variety of presentation increases in direct relationship to a museum's inaccessibility to the public it is intended to serve. But argument can still be heard in favor of extreme atomization of subject-matter between museums placed at excursion distances from the centers of population.

With all the emphasis upon organized groups of one kind or another, which is not only characteristic of this article, but of most of the debates about future plans, we are almost forgetting the interests of the first beneficiaries of the open-door policies of modern museums, namely, the average man and woman in the street and the individual child pursuing newly awakened interests on its own. For such people, young and old, the best location for a museum is obviously in the area where they will most frequently find themselves on other errands that may leave time for the repeated short visits so highly esteemed by most members of the museum profession, where most of the public means of local transportation converge, and where youngsters learn to find their own way at an early age even if they live at some distance. These are the locations favored not only by stores but also by commercial theaters, subsidized art centers and many other focal points of community activity. When comparisons are drawn between the situations of museums and of the dramatic arts the statement is sometimes made that the theater depends upon impulse action by the public and must therefore be where it can create the impulse to enter its doors. But, in the circumstances of today, the need to book seats in advance has virtually eliminated the impulse aspect to theater ticket sales, except as the impulse may be generated by a sudden reaction to word-of-mouth communication or newspaper reading. Museums and similar places for visual presentations are in fact the only members of the cultural "establishment" now capable of responding immediately and fully to any impulsive attendance they may stimulate among the passing crowds. Wherever they can, the museums should press for locations in which they can take the fullest possible advantage of their unique capacity to meet impulsive demands, and should cease cultivating a sense of dignified withdrawal from the daily life of the community into areas where trees are more plentiful and real estate is cheaper.

In this discussion we have been concerned with the problems of a city that seeks the proper location for its first museum or gallery. But that is not the end of the story. As town grows into city, and the city continues the expansion toward megalopolis, there soon comes a time when the museums ought to follow the example of the libraries by establishing

branches properly distributed through the metropolitan precincts. Unfortunately, few of the museums do; preferring to fight for their place in the competition for size rather than for effectiveness. But, for those that do attempt to maintain the accessibility for their services in step with the population explosion and urban expansion, the same reasoning still applies. They should seek space for their subsidiary establishments in the center of activities and not on the periphery of the subcommunities, boroughs, sections or neighborhoods they wish to favor by their presence.

A Plea for Abundance

A. E. PARR, DIRECTOR
THE AMERICAN MUSEUM OF NATURAL HISTORY

According to the density and arrangement of specimens on display we may speak of three basic styles of exhibition: storage display, serving only the housekeeping problems of the collections; choice and sparse selections, for the initiate, for the aspiring devotee, and for the casual window shopper; and abundance, for the adventurous browser eager to develop his knowledge and appreciation by personal experience and choice. Two of these can be quickly disposed of here—the first by joining the universal condemnation of a deplorable survival, the second by accepting the almost equally universal praise for the undeniable merits of focusing upon the qualities or the significance of the highly select. It is mainly for the lavish display of abundance that a good word still needs to be said, and not merely in apology for something of lesser worth.

What we speak of today as museum exhibition undoubtedly received its start from the collectors' desire to boast of their possessions, often, to be sure, after successful sublimation of this drive into an urge to be of service to science, art, and society. In the beginning, the open shelves and glass fronts in the private homes and the cabinets of the small museums were primarily intended to display the wealth of the personal or institutional collections. There was no thought of separating storage from exhibition. Such an idea would have weakened the primeval purpose of having any display at all.

As the collections grew, it soon became necessary to remove "duplicates" to drawers below the display cases or to storage elsewhere. "Duplicate" is a word used by collectors to describe the second to the millionth specimen of the identical kind. The rule became: only one specimen of each species on display. The duplicates in storage were considered essentially surplus, useful as a reserve for the replacement of primary display specimens or for exchange with other collections, but not serving any independent purpose of their own.

Fig. 1

Fig. 2

But collections continued to grow, and it was not long before even one of a kind became too much. It was not possible to continue to place on exhibit every species of insect or of sea shell, let alone every specimen. A further reduction of display material became unavoidable. Single specimens had to be selected to represent broader categories of more or less similar objects of more than one species or kind.

By this time the tail was wagging the dog. The reserve collection of duplicates had become the research collection of the scientists, many times larger than anything the museum could hope to put on display. Any temptation to use exhibition for ostentatious display of quantity was a thing of the past. Quality became the sole badge of distinction.

Nevertheless, storage displays are still with us in our darker corners, as

Fig. 1. Storage display. The American Museum of Natural History.

Fig. 2. A feast for the browsing eye. Two views. Sassoon ivories. City of Liverpool Public Museums.

Fig. 3. Browsing among the birds. The American Museum of Natural History.

Fig. 4. Hats of other cultures and of western fashions. Temporary "window shopping" exhibit. The American Museum of Natural History.

Fig. 2

Fig. 3

Fig. 4

living fossils surviving from a primitive past, much as the amoeba is still with us in spite of the emergence of man as the proclaimed victor in the struggle for existence.[1] With a commendable desire to avoid unpleasantness with many esteemed colleagues in other institutions, too numerous to mention, I sadly offer a photograph of one of our own exhibits in evidence of such survival.

While such relics still remain, selection for display, which had started as a housekeeping necessity, has become an end in itself. I would not venture to improve upon the admirable statement of the case for ultra-selection of quality which has been so eloquently presented by Mr. Sweeney in the last issue of this quarterly. I fully agree and particularly wish to endorse the idea of using curatorial choice as a means of offering intellectual leadership even without personal contact with the audience that moves anonymously through our halls. The highly select display is also the type of exhibit in which the art of exhibition is able to find its highest expression, as seen in the beautiful examples illustrating Mr. Sweeney's statement. It would be anticlimactic to attempt to offer other illustrations here. The question I wish to raise is whether the display of choice selections is enough to meet all the educational needs of our museum visitors. In answering that it is not, I am happy to know that I can also claim the agreement of Mr. Sweeney, whose case for ultra-selection is predicated upon the assumption that a wider assortment will always be available for inspection in other rooms or other places to deepen our appreciation and broaden our understanding of the finest, when it is put before us.

"Audience participation" has been the catchword of museum educators for a good many years. Apparently the participation is thought of chiefly in physical terms. Turning a crank or pushing a button is supposed to make the visitor feel party to the events unfolding, or depicted, before him. However that may be, throwing a switch that turns a spotlight on some particular item on display, or starts the locomotive going nowhere on spinning wheels, seems far removed from the true concept of learning by doing. It seems high time to reëstablish that man has brains if he would only use them, and that thinking is doing, too—being, in fact, the principal type of action involved in the development of the mind that should be the aim of all good education. A museum is not a gymnasium, not even for finger exercises with push buttons.

It is sometimes useful to make a statement in the form of a question. Is it the spectator admiring the choice of others, as revealed under the pres-

[1] A situation that ought to bring some relief to this age of anxiety by showing that there is at least one struggle in which the losers do not lose. The casualties seem to be only those who had it coming to them for other reasons and causes. Having created this diversion, we may now return to our topic.

sure of his index finger, who learns by doing, or is it the visitor searching, finding, and passing his own judgment upon what he finds in the plethora of an overabundant display?

This is not an argument against the highly select exhibits. They are the concert halls in which only the finest music is heard. But the music school and the music classroom are necessary, too, and it is not a bad idea to encourage the pupil to whistle his own tunes when it gives him pleasure to do so.

Elimination, selection, and rigorous prefocusing of attention could ultimately banish from all our halls the excitement of personal discovery. Let us therefore not forget to preserve or to reëstablish some wilderness areas among our exhibits, in which our visitors may still have the satisfaction of exploring for themselves, of acquiring truly individual tastes and interests by their own choice, and of developing independent personal judgment through the opportunity to compare good with better and the important with the more important.

When I have often expressed my scorn for the "pawnshop style" of exhibition, it was never with the idea of making a trip to the museum less exciting for the adventurous mind than a visit to a well-assorted pawnshop.

Comments

PACKAGED SIMPLICITY VERSUS CROWDED COMPLEXITY: COMMENTS ON A RECURRENT THEME AT MUSEUM CONFERENCES

At the last conference of the American Association of Museums there was opportunity to hear at least six different speakers voice their objections against crowding and complexity of museum exhibits by glancing remarks in passing, or by direct condemnation in talks on many subjects offered before different sessions and sections of the Association. It is the "modern" attitude. It is the one theme on which all will agree from honest conviction or out of simple fear of being old-fashioned.

In Boston we could also hear at least one reference to the need for proper "packaging" of our product, which has been so successfully demonstrated in the world of commerce. This is merely another point on the antlers of modernism, of slightly more recent origin. Endless reiteration has made our minds drowsy, and our heads nod wisely to the tempo of the old modern theme.

But such few critical tests as have actually been made clearly show that simplicity in itself is not uniquely related to educational effectiveness. A more complex presentation may actually result in better and faster learning. It all depends upon the nature of whatever is being taught, upon the surrounding circumstances, upon the condition, preparation, and previous experience of the learner, and upon other factors.

If simplicity is not a virtue in itself, what other foundation could there be for the modern dogma of museum philosophy? The evidence quoted in its favor usually relates only to the number of people attracted to and stopping before exhibits of various degrees of complexity. But this is no evidence of whether or not they learn anything from what they see. Could it be that simplicity as such is more attractive, regardless of whether or not it teaches any better? This sounds reasonable until we remember the fact, well known to any parent of boys, that no museum has ever succeeded in creating an exhibit half as fascinating to a youngster as a well-assorted junkyard or even the city dump. But these are not simple, nor well-packaged, nor uncrowded displays. And there is no reason for adult superiority when we note the attraction of the antique shops that line our highways and seem to thrive in direct proportion to their deliberate air of desperate chaos and confusion. It would therefore appear that crowded complexity without packaging may also exert greater attraction at any age than packaged simplicity, given the right circumstances.

If simplicity in itself is not necessarily more effective educationally or more attractive, and can be the opposite in both regards in many comparisons, what is left to bolster our doctrine? Could the crux of the matter be that it is much more difficult to create an attractive crowded and complex exhibit than to

arrange a pleasing and simple one, and that we therefore subconsciously want to nourish a belief that will explain our failures of the past and protect us against ever having to try the more difficult path again? If this should be the true reason for our universal condemnation of crowded complexity in museums, we are grievously at fault, and impoverish the performance of our institutions by quite unnecessary restrictions upon the artistic "vocabulary" we develop and make use of in our exhibits.

Since modern attempts at designing for abundant display are so very rare, at least in museums, it is difficult to find enough evidence for positive generalizations about how to make crowded complexity alluring and diverting. But some negative principles are perhaps discernible.

From the observation of many "badly" crowded exhibits one may surmise that one of the exhibit designer's worst dilemmas may be curatorial insistence upon a bushelfull of labels for each bushelfull of specimens. Undoubtedly one of the great fascinations of haphazard crowdedness is the opportunity to conduct one's own search without too many guideposts dictating the way. It is not necessary to have an identifying label for every specimen on display. Omitting specific labels for many of the objects does not mean leaving out their educational purpose and usefulness. A crowded museum exhibit should differ from a crowded junkyard in that it only appears to have accumulated in haphazard abundance. By subtle selection and arrangement the "extra" specimens may be made to tell their own story, adding both detail and depth to the main theme, and perhaps doing it all the more effectively for leaving the verbalization of their message to the mind of the observer instead of merely to his memory of something read.

If the exhibitor can be liberated to use labels with discretion, he still faces the formidable and forbidding task of creating a tightly planned image of seemingly casual profusion, with the enchantment of a tangled skein that will lead the viewer unaware on unmarked paths to knowledge. No wonder we find it safer and easier to condemn crowded complexity than to try to use it!

When we add the copious display to our vocabulary of styles of exhibition we shall undoubtedly find that the obvious formations of paucity will not suffice for the parade of plenitude. The disposition of the various elements must become more intricate and less conspicuous in some sort of direct relationship to the concentration of objects used. Specimens on file soon become boring and repugnant, but the outpouring from a cornucopia shows the subtle dynamic harmony of a pattern of flow that has intrigued artists and decorators through centuries. Attention must shift from the array of the units to the mold of the aggregate.

The beauty and value of highly select simplicity are beyond dispute. But let us not from sheer mental indolence adopt a purely negative doctrine that denies us the values of all other forms of presentation. So far as anything can be proved today, the case against crowded complexity rests solely upon our objections to a more difficult task in which we have often failed in the past.

A. E. PARR

Mass Medium of Individualism

A. E. PARR, SENIOR SCIENTIST
THE AMERICAN MUSEUM OF NATURAL HISTORY

It is the lot of educators and parents to be torn between a desire to bask in the immediate gratitude bought with easy knowledge and tiny pleasures, and a deeper hope of future vindication and more durable happiness flowing from a sterner course. In our concern with physical welfare the obviousness of the conflict makes the choice of action relatively simple. The connection between bellyache and overindulgence is so painfully plain that wisdom is easily gained.

In the training of the mind the results of our mistakes are more subtle and long delayed. Perhaps they appear only as slight weaknesses in character or judgment, which do not find expression until much later in life, when the victims of our shortsightedness have left our ken, and a sense of responsibility for their thoughts and deeds can no longer impress itself upon our consciousness against our own inclination towards self-approval. The temptation to strive for immediate popularity in educational efforts is therefore overwhelming, and the price of evil the public may later have to pay is so remote from its true cause that it can easily be disowned by those directly, though not intentionally, responsible for it.

Modern psychology and modern inventions have placed in the hands of education innumerable methods by which it may make the absorption of knowledge an easy, entertaining, and almost effortless experience. Television, motion pictures, radio, public address systems, recorded speech, and mechanized demonstrations offer their messages of entertainment, propaganda, information, and advertising in endless profusion in homes, theaters, and public places. The same methods and media are available to the educator in his school or his museum.

To take objective measure of the educational merits of different modes of presentation is extremely difficult, and the results would be very controversial if, in fact, one did succeed. Still, we recognize some basis for judging a school by its product, and express our conclusions in the good,

bad, or indifferent reputation we bestow upon each. But the public museums do not even have to stand the test of having their audience subjected to occasional examinations to measure the gains made in knowledge or understanding. Among all educational institutions the museums therefore offer the most fertile field for opportunistic catering to immediate popularity. A count of noses, not a measure of knowledge, is all that is asked of us. But before we yield to a temptation to convert to the methods that have brought others success in popularity contests or market place, let us first examine what these methods would do to the particular purposes and ideals we do, or ought to, serve in our society. Let us also, before we imitate others, try to discover if we do not have special functions of our own in which we ourselves could not be imitated by anybody else. And, if we do, let us rest our case on the value of these functions, performed to the best of our ability.

First among the friendly or indifferent, cognizant or unaware competitors who have, at various times, helped to confuse the natural history museums about their place and purpose in the scheme of things, were the zoological gardens. When Hagenbeck as early as May, 1907, began to show his living animals outdoors in simulated natural landscapes, he was not far behind the first habitat groups in the natural history museums. The tremendous strides made since that time by the zoological gardens, and their siblings, the public aquariums, have only increased the seeming duplication and superficial resemblance between these institutions and the museums, until it has become possible for confused thinking applied to confusing circumstances to bring forth such suggestions as, for instance, that a museum does not need a department of fishes if the city in which it is located already has an aquarium.

It is not my task to argue the case for the zoos and aquariums. Their advocates are numerous and highly competent, and, as a devotee of both kinds of establishments, I should undoubtedly find myself subscribing to most of their arguments in advance. Our task here is simply to find the special functions and advantages of museums that cannot be duplicated by zoos and aquariums, however great their outward resemblance. That zoos and aquariums, on their side, also have special functions and advantages goes without saying.

Although there are exhibits in many zoological gardens and, particularly, in aquariums that seem hard to tell from museum habitat groups, until the bird takes to the wing or the fish darts from its hiding place, these displays can, nevertheless, not give a true picture of the home environment of the species, except when they deal with strictly local fauna and flora. Topographic, climatic, and other limitations make it physically impossible to create a complete and realistic reconstruction of a distant landscape with the use of living materials. With their artificial plants and

still replicas of the living beasts, the museums face no such restrictions upon their creativity. They can show the zebras amid the true vegetation of the hot African plains and still have a convincing view of the snows of Kilimanjaro in the distance. It might be thought that the painted illusion of remote perspectives, at least, could be equally effectively applied to the display of living material. But this is not so. Successful illusion requires rigid control of shadows and of forced perspectives. Animals that move about will throw their shadows in "impossible" places, as on a mountain top, and will invade the converging lines of perspective to tower over trees a hundred feet tall.

In the contemplation of the habitat form of exhibition, we begin to see that the stillness of "life" in the museums, for which we sometimes tend to be slightly apologetic, is actually a great advantage, offering the museum unique opportunities to be of service to education in ways that other media cannot follow.

This advantage has application not only to the presentation of the totality of nature but also to the demonstration of individual functions. If we want to use living material to show the characteristic activities for which a particular animal would seem to have become adapted, we become dependent upon the mood of our performer, and in no circumstances will we be able to make him perform continuously. Whether or not the class or the individual will receive the lesson our exhibit is meant to give becomes a matter of sheer and unpredictable luck. The museum cannot at any time show a kangaroo jumping, but it can show a kangaroo in the act of jumping at all times. The role that dozing in the sun or in the shade plays among the "activities" of living things is sometimes discouraging to watch. Dead specimens also permit explanatory expositions of their parts in ways that life could not tolerate. The increasing use of supplementary exhibits of museum type in zoos and aquariums pays tribute to this fact and is perhaps pointing the way towards future institutions in which the functions of museums, zoos, and aquariums will be completely combined and integrated. The combination already exists in many places, but true integration has scarcely been started anywhere.

Other media, methods, and inventions with which museums must compare their performance include those of books, movies, and television—schools, theaters, and toys. The first three of these are essentially two-dimensional media. The claims they often make to having conquered the third dimension are founded upon appearances only, as lacking in reality as the *trompe-l'oeil* of other days. The illusion is based upon an immutable visual relationship between a fixed or, in the case of motion pictures and television, an unalterably changing perspective. The camera may have moved freely in three dimensions. The viewer does not. His vicarious movements are bound to the course of the camera, as the railroad train is

Fig. 1

Fig. 2

bound to its tracks. He can be offered only a series of two-dimensional images in a succession over which he has no control, and from which he cannot deviate.

The great virtue of the genuine third dimension of museum exhibits is that the observer's choice and control of perspective remain unabridged by the translation of images through mechanical devices. He can move around the object or change position before it according to his own wishes or needs, in order to trace connections and relations that are not visible from the "front and center." His own curiosity and his own ability to explore a subject have a free rein. This scope of selection applies not only to perspective, but also to the time devoted to the study of each object or subject, and to the sequence in which they are observed. Among the six other media, methods, and inventions we are now discussing, only the toys are potentially able to offer a similar freedom of choice of manner, speed, and order of learning. We shall return to the toys later.

Among the two-dimensional and pseudo-three-dimensional media the freedoms of choice decrease as mechanization increases. In motion pictures and on television both the pace and the contents to be experienced by the audience are unalterably fixed in advance. The individual may accept or reject what is offered, but cannot change it to fit his personal needs and interests. The printed word offers considerably broader opportunities to select individual paths through the fields of learning. The speed of progress is entirely determined by the capacities and inclinations of each individual reader. Even the order in which a subject is studied can be altered in its broader aspects, but not in its finer details. One may skip forward or turn back to later or earlier chapters, but the patterns and associations of thoughts and concepts in single sentences and periods are uniquely determined by the author. While films and television give no freedom of choice within an accepted presentation, it may be said of the printed medium that it offers the individual complete freedom of pace, and some freedom of sequence, but virtually no freedom of manner, and no freedom of perspective at all.

The reference to toys in connection with this discussion was not entirely facetious. For better or for worse, toys play an important part in our education. In earlier days this was largely coincidental and unrecognized. Today the relationship between toys and the process of learning is often greatly improved upon by the deliberate and commendable design of enlightened parents and manufacturers. In fact, many of the best "educa-

Fig. 1. Landscape in Hagenbeck's Stellingen Zoo in 1907.

Fig. 2. Habitat exhibit of spiral ibex and goats in Stellingen Zoo in 1907.

tional toys" now flooding the market differ from good museum models only by the very minor crudities that seem an unavoidable corollary of mass manufacture, and the only way one can always be sure to be able to tell one from the other is by simply declaring that a toy is not a toy when it is in a museum.

It is obvious that toys also offer a genuine third dimension with all the freedoms of observation found in a museum, and indeed with an additional freedom very rarely obtained in an exhibition hall, namely, the freedom of manipulation. Does this, then, mean that toys merely need some slight qualitative improvement in order to take over the educational task of the museum and to do it even better, with the added convenience of doing it at home? The answer is "yes and no." In the first place there would, of course, scarcely be any home capable of maintaining a collection of toys adequate to replace the collections of even a small museum. On the other hand, there cannot be any doubt that a personally owned toy working model of good quality will be far more effective than an impersonal museum exhibit when it comes to teaching an understanding of a particular article, such as a tool that might be seen in an ethnographic collection or a more complex invention shown in an industrial museum. But, when we move from copy to original, and from the particular to the general, the museum again comes into its own.

While models are an invaluable educational tool of museums, schools, and homes alike they lack the impact of "the real thing." This is why it is so important in a museum to use actual specimens as often as possible, even at some loss of the lucidity and simplicity with which a phenomenon could be illustrated by models, which gain in intelligibility by what they lose of the reality they represent. A subject treated by models only, particularly when it is done in three dimensions, tends to take on a subtle air of non-existence which gradually discourages interest, especially among the young. In teaching the subject of human biology, for example, it is unquestionably necessary to rely heavily upon models, animated diagrams, and similar methods of simplification. But it is equally essential to keep alive the sense of urgent reality by also showing actual organs from human bodies among the imitations.

Beyond giving reality to the particular, the museum also has an ability to deal with the general on a scale, and therefore in a manner, that makes it potentially unique among educational institutions and other aids to education.

The value of being able to observe things in a museum according to one's

Fig. 3. Educational toy model of a bumblebee and a museum model of a fly.

Fig. 3

own choice of the order in which to see them has already been mentioned. The value of this freedom is not reduced by the fact that there is a certain order imposed upon the exhibits of a museum, which is quite inescapable regardless of how a visitor may choose to ramble. Whatever is seen is (or should be) seen in the context of related phenomena, arrived at by a tour, however hasty, through themes developing in an orderly and logical manner.[1] A well-organized museum should offer the visitor the same kind of freedom to wander, and to learn from the innate order of his surroundings, that a walk in nature gives. With all due respect to the playroom, it partakes more of the fascinating character of the jumble shop than of the grand design of nature.

In a sense, it is therefore true to say that it is in the over-all design of its presentations, rather than in the details of its particular exhibits, that the museum has the greatest opportunity to be of truly unique service to education. With over-all design left out, the museum differs from the playroom only by size, cost, and a slight touch of reality.

It may be well to recapitulate our conclusions up to this point. The real or potential virtues of the museums as educational institutions lie in (1) their ability to abstract and perpetuate revealing but fleeting situations, (2) their command of a genuine third dimension, with free choice of perspective, in their visual demonstrations, (3) their ability to inject a sense of reality into their presentations by the frequent insertion of genuine samples of natural phenomena, (4) their further ability to simulate actual reality in detail as needed, instead of having to substitute different realities for one another, (5) their ability to communicate a sense of the order of things without imposing any order upon the whims and movements of the viewer, and (6) their ability to avoid setting a pace that must be followed by all alike.

When we sum up these virtues and the freedoms they offer, we realize that the museums, which according to their total attendance are certainly to be classified as mass media, are the only mass media offering completely individual educations to all who seek it, in all respects in which the individual can be free and unique with regard to what, when, how, and why he learns. Anything that subtracts in the slightest from these virtues and freedoms also minimizes the museum's services to society. This is not to say that every technique and device that do not in themselves possess or support all of these merits must be avoided everywhere and at all cost. Rather it is a question of using sound judgment, taste, and sense of proportion to see that true beauty is not concealed by blatant costume jewelry. As a case in point, we might consider the Guide-a-Phone.

The American Museum of Natural History is rightly proud of its part in

[1] See also Helen V. Fisher: CURATOR, vol. III, no. 2, pp. 186–187.

the development of this instrument and in its introduction to the public. But before the walkie-talkie enabled us to bring our message silently to each individual listener, without a sound to disturb our other visitors, the writer was sometimes criticized for his objections to having similar "canned" lectures delivered in our exhibition halls over the loudspeakers of a public-address system. There can be no question that the Guide-a-Phone adds immeasurably to the museum experience of a large number of our visitors, especially on their first visit. But it is equally certain that the same information vocally forced upon the ears of all, regardless of previous knowledge, understanding, interests, and purposes would destroy one of the museum's greatest educational assets, the freedom of each to contemplate what he sees according to his own speed, inclinations, and point of view.

In this connection two things must be borne in mind. One is that the educationally most valuable visitor is the repeater, who returns again and again to deepen his appreciation of what the museum has to offer. Regardless of the subject, a single visit can hardly be said to provide more than light entertainment for an idle hour—commendable and mildly instructive in spots, but of no great consequence as an education. The effects upon the repeater must therefore be of prime concern to us in all our efforts to increase the effectiveness of the museum as a teaching medium. Nevertheless, it is one of the commonest errors among museum workers to plan as though an exhibit were meant for a single experience, and to judge by the impact of first impressions only. The error is even more common among museum friends. In our example nothing, certainly, could be less enticing to a repeater than an inescapable canned lecture already heard before, and perhaps again and again.

A second consideration is that no mechanical teaching device demands greater regimentation, and induces greater passivity of mind, than does the mechanized delivery of a recorded lecture. Speed, contents, sequence, and point of view are all irrevocably fixed in advance, beyond influence by the temporary audience. All inducement to critical alertness is lacking, because there is no opportunity to give expression to critical thought through the questions and objections that can be voiced before a teacher or "live" lecturer.

Since it is the declared purpose of educational mechanization to make the acquisition of knowledge an easier task, there is always a great danger that such methods, when carried beyond initial stimulation of interest, may weaken our intellectual fiber by developing a craving for easy learning and a disinclination towards the individual initiative and the personal effort required for a deeper understanding. We do not train a nation to become fighters, workers, and athletes by giving it soft pillows to rest upon. Nor do we develop a nation of thinkers whose mental capacities will insure the success of government by the people, if we make them rely

too far upon thoughts presented by a mechanized voice instead of ideas gained by their own efforts. We simply prepare them for the blind acceptance of any future propaganda to which such methods might equally well be applied.

Nevertheless, we must, of course, use recorded voice and all other techniques available to us to the extent that they increase our ability to communicate without detracting from what we teach or destroying our ability to contribute to the development of independent thought. Whatever we do, let us always protect the serenity and freedom from inescapable compulsions in space or in time that have given the museum the paradoxical role of our only educational mass medium for the promotion of true individualism.

Some Basic Problems of Visual Education by Means of Exhibits

A. E. PARR, SENIOR SCIENTIST

THE AMERICAN MUSEUM OF NATURAL HISTORY

During twenty-one years spent in the administration of two museums of natural history, many ideas and many disturbing questions about fundamental principles have had to be laid aside in the rush of daily action, until more propitious opportunities for mental or experimental inquiry might present themselves at some future time. Through a forward-looking new policy of The American Museum of Natural History, the author is now in a position to return to the thoughts that were dropped before and submit them to fresh examination. In so doing he has become increasingly appalled by a growing realization of how often he and all others responsible for visual education have had to act and must still continue to act without anything to base their decisions on except a blind faith in their own personal convictions and preferences, or an equally blind submission to the prejudiced dictates of fashions or traditions that are not supported by any evidence of their validity.

Since most of the problems are beyond solution by the efforts of a single individual, it is hoped that a brief statement of the besetting doubts and unanswered questions might help to generate the interest of a larger group in finding the answers and might also serve to uncover any existing information that may not have received the attention it deserves among those concerned with the tasks of visual education by means of exhibits.

It was my good luck some sixteen years ago to have opportunity to assist at the introduction of professional design as a new element among the organizational units charged with the planning and execution of museum exhibits that were previously left to the knowledge of curators and the artistry of preparators alone. We know that the results have been pleasing to our own tastes and that the response of others has been flattering to our efforts. But, beyond the esthetic satisfaction it provides, we have

no evidence of what effects good design may have upon our ability to communicate knowledge and create understanding by visual means. In fact, we do not even seem to have rigorous proof that design makes any difference at all to the educational value of an exhibit, however great our personal faith in the designer's art. And we are making no serious attempt to arrive at objective appraisals of performance in the tasks to which we are dedicated.

These are shocking statements to make at a time when our nation is spending tens of millions annually in multitudinous ventures to teach ourselves and to present our case to others by visual methods. There is the steady and constantly growing stream of funds poured into the exhibition activities of all the museums across the land. There is national participation through the Departments of State and of Commerce in almost every international exposition organized beyond our borders. The same and other federal agencies such as the Department of Agriculture are sponsoring exhibits within our own country to teach better uses of the land, to stimulate interest and participation in science and engineering, to promote the development of industry and trade, and for many other purposes. And there are the armed forces designing and manufacturing exhibits on a large scale for the training of their personnel. These examples do not provide an exhaustive muster of our labors in the field of visual communication for purposes other than advertising, but are merely illustrations given to remind ourselves of the magnitude of our national efforts to teach by means of exhibits, without any effort to study the educational effectiveness of the means that are used.

In the broadest sense any object or arrangement made by man involves and embodies design. In an exhibition we may speak of several different levels of design. Since specimens created by nature, or by other hands than his, are generally the materials with which the museum exhibitor works, he only occasionally has to engage in the design of single objects, and design at this level will not concern us here.

In the task of composing a larger image by the organization of many separate items into an integrated exhibit, there are two fairly distinct levels of operation. For best effect the over-all conformation of the entire exhibition space should be re-molded to suit the particular subject and objects on display at any given time. This can be accomplished by the arrangement of showcases, screens, dominant larger objects, partitions, false walls, secondary ceilings, and many other elements in the domain of exhibition architecture. On another level the display designer concerns himself with the appearance of the interior of each showcase or other display unit called for in the over-all plans. The pattern of specimens, the form and color of backgrounds and supports, labels, and graphic accessories are the chief means of expression by which the display artist achieves his results.

Exhibition architect and display designer may be the same or different persons, but a distinction between the two roles that must be filled in the creation of an exhibit is nevertheless of value. It is surprising to see how often only one and not the other will receive professional attention. A good display designer may have to accept without change an existing interior that conflicts with the nature and purposes of a particular exhibit. Or an architect may be engaged to create an appropriate exhibition interior which is then left to the curators to "furnish" with their specimens. But regardless of such details it is clear that a growing number of educational agencies are spending increasing amounts of money annually on the design aspects of their functions and products, and it seems high time to begin to find out what, if anything, the design of an exhibit may do to its educational effectiveness, be it a grand display in a museum or at an international exposition, or merely a traveling exhibit installed in a trunk.

In trying to urge the need to allocate some funds for the study of the educational value and significance of the design, as distinct from the contents of a visual presentation, the writer has even been unable to find any scientifically adequate evidence to put forward against the claim that the design makes no difference at all to an individual's ability to learn from an exhibit. Incredible as it may seem to some of us, such statements can actually be heard. Even if the words express only resistance to the idea of exposing our exhibition habits to critical examination, rather than personal convictions about design, they nevertheless do raise obstructive questions that apparently still have to be answered before any great progress can be made. Probably no person, when challenged, would attempt to defend the proposition that the nature of the stimulus may be varied at will without any related variations in response. But the unreasonable objections have a legitimate target in our admitted ignorance of the extent to which the educational effectiveness of an exhibit is influenced by its arrangement and decor.

Quite obviously there would be little to worry about if the teaching potentials of the best and the worst form of display should differ by less than five per cent, except, perhaps, that there might be some reason for concern about the price we are currently paying for design. But few who have had opportunity to study the use of exhibits for educational purposes would incline to the belief that the difference between good and bad is one of small percentages only. Rather would they assume that the best might be many times better than the worst as a means of communicating knowledge and understanding. Such an assumption can also claim considerable support, as least by analogy, from the studies that have been made of the influence of design upon the motivations of the market place. And, if this should prove the correct supposition, we are actually dealing with a question of whether we are getting, say, twenty or one hundred million

dollars worth of education from something like fifty million dollars spent annually in an effort to teach by exhibits. Should such a conclusion be indicated by the first investigation into the magnitude of the effects we are dealing with—as the writer fully expects—it would hardly be necessary to advance any other argument for the continued study of our exhibition methods. In view of our nearly total lack of objective evidence, the first step must therefore actually be to establish that there is a relationship between design and educational value that well deserves further investigation.

Technically such a preliminary study to establish basic premises should not be too difficult. Even the amount of funds required would not be too large. Space in which to conduct the tests might be more critical, and passive resistance to any testing of cherished claims and illusions would seem the greatest obstacle. Some such procedure as the following might serve the initial purpose.

A fairly simple topic should be selected on the basis of the following requirements. It should deal about equally with facts to be remembered and relationships to be understood and must lend itself to visual exposition by means of objects that can be obtained in quantity without variations, or can be multiplied by casting or other methods. In view of the demands upon space, personnel, and supplies it would seem unrealistic to aim for more than ten identical sets of objects as the basic materials for the first pilot experiments. Several professional designers, teachers, curators, and some persons without special qualifications related to visual education would be invited to make his or her personal and independent arrangement of one of the identical sets of objects, with the purpose in mind of trying to tell the agreed upon story that would be the same for all participants. The differences between the ten diverse exhibits resulting from these individual efforts will then be entirely a question of design only,[1] and it should be a comparatively simple matter to test the extent to which each arrangement succeeds in communicating the information and the insights it is intended to convey.

It is important in this connection to differentiate very clearly between the absorption of knowledge and the achievement of understanding. There are many indications that facts may actually, at least in many circumstances, be more easily memorized in the absence of any demands upon the power of reasoning, as shown by the mnemonic value of nonsense rhymes and similar verbal devices. This implies the fascinating possibility that the visual communication of facts and the visual propagation of understanding may conceivably have entirely different design requirements. If

[1] At this exploratory stage of the investigation differences in personal interpretation of topic may be treated as differences of design in which they find expression. This may not suffice at a more advanced stage of inquiry, and would certainly not suffice if we were concerned with the mental processes of the exhibitor and not of the viewer.

this should prove true it would certainly complicate the problems of museum educators and exhibition designers, but is not this in itself all the more reason to try to find the truth with the least possible delay?

Even from such a simple experiment as the one just suggested it should be possible to obtain incontrovertible proof that the pattern and the setting in which the materials are presented do make a substantial difference in the ability of an exhibit to communicate its message to the viewer. With objective evidence of this in hand the need for an expanded and intensified study of the relationship between design and the processes of learning would scarcely need further argument in the light of our national expenditures for teaching by visual aids. It is not quite so certain that the preliminary exploration of the subject would also suffice to prove that the professional designer when he applies himself to the task has a special contribution to make to the educational value and not alone to the esthetics of a visual presentation. Those of us who have encouraged and engaged the cooperation of designers in our educational efforts firmly believe that the designer by natural gifts and special training has acquired creative skills, insights, and sensitivities peculiar to his own profession and capable of being turned to great advantage in our task of communicating with the public. But we need objective proof of our contention. As soon as the importance of the form of presentation has been adequately demonstrated it should not take much more inquiry to get a general measure of the special contribution the designer makes, over and above the results that others are able to achieve without his help.

Before proceeding it is perhaps best to acknowledge an awareness that various studies have been made of human reactions to individual elements of design such as color, graphic symbols, and other isolated variables. These investigations are invaluable, and it is to be hoped that they will be continued and expanded. But in the broader sense of our over-all problem they might be likened to the study of grammar and vocabulary as opposed to the study of literature. When a designer submits a proposal it is not simply a graphic chart of his pigments and artistic forms and symbols, but an integrated work of art created by him out of these component parts that could also be combined in an infinite variety of other patterns.

Another kind of inquiry demanding our attention at this point is that which has become best known in its application to "marketing research." Both merchant and educator need to catch and to keep the attention of those to whom they address themselves. Up to this point the studies that have been made for commercial purposes on how design helps to attract and to retain notice also have important messages for those who try to teach by display. But, with attention firmly held, trader and teacher come to a parting of the ways. When we design in order to sell, our primary purpose is to create an uncritical compulsion to buy a certain product or to

accept a certain point of view. This is the absolute antithesis of an educational purpose. When we design in order to teach, our goal is not to achieve a hypnotic suspension of judgment, but, on the contrary, to alert the critical faculties and to awaken the independent inquisitiveness of our public. All the work that has been done on how to persuade without having to convince is without application to the educational process, except as a warning of dangers to avoid.

That this should be so is perfectly natural and could scarcely be otherwise. In these days when food untouched by human hands is threatening to become a national ideal, the merchants of many products, even if it was their desire to do so, would probably not be allowed by law or by public opinion to submit the contents of the parcel to the personal examination of each customer. In other cases ninety-nine per cent of the public would lack the technical competence to judge the true merits of the goods they buy. Whether he wishes it or not, the vendor is therefore essentially limited to the sale of a name or a package, rather than its contents, and emotional compulsions rather than informed opinions are his only reliable allies in his own struggle for existence. In visual education, on the other hand, the danger of having the package we must use to draw attention likewise steal the attention from the contents is one of our greatest problems. There are also many other reasons for the natural antithesis between the principles that apply to commercial presentations and those that apply to educational design, but it would not seem necessary to pursue these differences any further in this connection.

Some designers undoubtedly feel a natural and understandable suspicion of any proposal to evaluate design on any other basis than personal likes or dislikes, which we call sophisticated when we agree with them and unsophisticated when we do not. But educational effectiveness is not simply a matter of pleasures or aversions, and introspective observations of our personal reactions do not give us a sound basis for decision in matters of educational design. We need to create a body of recorded experience that can help us develop better methods of evaluation. Nobody could claim that the study of the history of art has reduced the freedom of the artist, nor could anybody deny that such studies have greatly enriched the means of expression of many of the greatest and most creative originators in the realm of the fine arts. The investigations here proposed would be essentially similar in their results. They would serve to make available to designers and educators alike a source of carefully observed and reported case histories of the kind and degree of communication achieved by various concrete examples of design actually put to the test of educational use.

From the perusal of such records both creators and critics of educational design would get deeper and sounder insights on which to base their ideas and their judgments. But the relationship between a design and the

response of the viewer is far too subtle and complex, and individual variability much too great, to give any reason to fear that it would ever be possible to establish rigorous "laws" that could be applied with mathematical precision without the personal interpretation of artistic genius. On this point we also have double assurance from another feature inherent in the very nature of educational, as well as in all other forms of communicational design.

If it should ever become possible to determine the one and only absolutely perfect design for a given task of communication, it would be perfect only for the fleeting moment of its inception. As soon as the design is accepted, a loss of impact begins to take place, and, as acceptance broadens, impact lessens apace. Innovation in educational design therefore becomes an unending process for which there can never be a final and permanent goal.

As the study of case histories progresses it seems quite probable that the contributions it will make towards an objective critique of educational theories and superstitions held by teachers, museum curators, and others may become even more important than the help the inquiries may offer the educational designers towards a better understanding of the human responses with which they work.

To give a slight indication of the tremendous scope of blissful ignorance in which we perform our daily tasks in visual education, it may be well to call attention to the entirely unverified status of one or two of our most basic and cherished tenets in areas not previously mentioned in this article.

The condemnation of crowding and of complexity in the arrangement of objects for educational display purposes has gained virtually universal acceptance. And yet there is not one shred of evidence for the broad generalization underlying such an attitude. That sparcity and simplicity are of great value for many purposes, including that of satisfying a need for variety in the educational diet, is certain. But observations in other fields than visual education indicate that crowding and deliberate complication of an exposition may serve a better purpose in other circumstances, and perhaps even more often. This we should find out about, and thereby learn to use a wider instead of a narrower choice of designs for our presentations.

Probably all directors of scientific museums share a dream of some day being able to devise an over-all plan for their institution that would make all of a visitor's experiences follow an orderly and undeviating thread of logic through all the exhibition halls. It was also my dream until very recently. Though never completely attainable, the ideal has been very nearly realized in some of the smaller museums in this country, and even in a few very large ones abroad. But is it really a valid ideal? Is it educationally most effective always to let one thing lead to another, with never a serious break of continuity? Again we find a total lack of evidence for our beliefs.

So far as I have been able to learn, nobody has bothered to try to find out whether an exhibit exploring the workings of an airplane engine actually teaches its lessons best in the ambience of an art gallery, in a hall of fishes, or in the surroundings of the hall of technology in which our craving for logical "orderliness" now demands that we place it. The question is not a facetious one, but one that actually should concern all educational media, including classroom teaching by lectures. If one looks at the daily schedule of any student, from the pupil of an elementary school to the candidate for a doctor's degree, one will find a helter skelter sequence of classes that jump from one subject to another and back again in a truly wild disorder in the course of a single day. The word "disorder" is used with good conscience because it has not been possible to discover that there has been any adequate inquiry, or any inquiry at all, into the importance of subject sequence in relation to the learning process. The suggestion of showing an airplane engine in a hall of fishes is therefore merely a proposal that the museums test the system under which the educators of schools and colleges would seem to have been operating quite happily for generations. It would be nice if a study of the importance of sequence in visual education could be coupled with similar investigations of classroom teaching. The student counselor needs the information in order to plan a balanced daily educational diet instead of the potluck of mixed dishes now offered. The exhibitor needs to know how long he can effectively hold to the same logical order of progression in his exhibits, and also something about the kind of changes in subject matter that are likely to have the best results. The possibility that the "orderliness" we have always dreamt of would be a liability, if not a disaster, in all but the smallest museums is great enough to call for urgent investigation. The possibility should not, however, encourage enthusiasm for the unplanned disorderliness in which so many museums indulge. Changes of subject matter, like the esthetic changes of pace in exhibition design, must be based upon a sound knowledge of the value of change, deliberately applied to the problems of visual presentation. It is high time that we acquired the knowledge to do it with.

Among the many other unknowns of visual education that should be looked into is the relationship between personality and the learning process. Evidence has been brought forward[2] to show a generalized difference between "imaginative" and "unimaginative" people, the former preferring asymmetry and apparent disorder in two-dimensional configurations, the latter symmetry and orderliness. Preferences are of course not learning responses, nor are they directly indicative of what the learning responses would be, but generalized differences in one make it very unlikely that there would not also be generalized differences in the other. It is obviously

[2] Barron, Frank, "The Psychology of Imagination," *Scientific American*, September, 1958, pp. 151–166.

of great importance to find out how to address the educational messages of a museum to all kinds of individuals to the extent that it is possible to do so, and it is particularly important, in the writer's opinion, to avoid the risk of reaching only the "imaginative" or only the "unimaginative" members of the audience, while merely boring or disturbing the other groups. Without both types of personalities society would either stagnate or be reduced to chaos, and the education of one is as essential as the education of the other. And yet there is very real danger that entire institutions may be found to be truly effective only with individuals of a relatively and quite unnecessarily limited type. The writer has often inveighed against the dominance of a single person's taste in any broad program of exhibition, for the reason that even the best of taste will produce tedium when too far extended. There may be deeper and far more significant reasons for such an objection, and we must try to find out about them.

These are only a few examples of the numerous unknowns of visual education awaiting highly needed investigation as soon as preliminary tests of the importance of design in visual education, by some such method as that suggested in the preceding, have laid the foundation for continuing research in this important but badly neglected field.

Remarks on Layout, Display, and Response to Design[1]

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This address, not originally intended to be published in CURATOR, *is included in this issue because of the timeliness of the subject. In the year of New York World's Fair, attention is again being focussed upon the complicated relationship of museum display to other exhibit forms, and the way they have influenced each other. One of the earliest interrelationships was that of the habitat group, the period room, and the naturalistic department store-window display. These exhibit forms have developed side-by-side since the late nineteenth century. But the mutuality of the problems of display organization of both museums and stores has not hitherto been accorded the attention it deserves. The Editorial Board of* CURATOR *feels, therefore, that the following article will be stimulating to its readers, in that, by drawing attention to aspects of store display, lessons may be learned about longer-range museum exhibition problems.*

GORDON REEKIE

Problems of visual presentation, and of environmental design, have been of absorbing interest to me for more years than I care to count. And, now that I no longer have to run a museum, I am finally able to apply myself to the study of how I ought to have done it, with time enough to seek the answers to all the questions that I previously had to brush aside under the slogan of "getting things done." And in the pursuit of the answers I seek, I spend a great deal of time looking at stores and store windows, and learn a lot from both. From the windows I learn to appreciate what can be accomplished, while the stores enlighten me on what should never be done.

[1] Presented to the Package Designers' Council of New York, January 14, 1964.

With the background of my own experience, it is unavoidable that I will be most interested in the kind of emporia that most resemble the museums, both in their appearance and in their problems, namely, the great department stores. When I do not explicitly mention other types of enterprise, you may therefore assume the principal scapegoats of my remarks to be these grand marts of general merchandise.

Since even a rambling discourse should not be a random oration, the pattern of perceptions and responses I generally go through on my visits to the shopping districts, wherever I go, may provide a good opening sequence for my remarks.

To be sure, there are trite and tasteless store windows to be found anywhere. But window display at its best has become a fine and independent art form, which fills me with admiration and with envy because it is so rarely possible for the museums to secure, or perhaps I should say to liberate, the artistic talents needed for similar achievements in their own halls. It often makes me sad to think of the ephemeral nature of even the best art of window display, and I make notes to write the stores for photographs of the windows that I most admire. Many times this only leads to more sadness by disclosing how casually the patrons of the art of window display let even the finest examples pass into oblivion without bothering to preserve for the records at least the shadowy image of a black and white photograph. In all their inadequacies such pictures would form an invaluable source of information for all students of exhibition styles and methods. I, for one, would be very grateful for any photographs that anyone would let me have, and, at the present time, I am particularly anxious to gather as many illustrations as possible of the use of the human head and the entire human figure, in effigy, as an accessory prop or a principal feature in all kinds of display.

Many interesting questions are raised by the introduction of the human likeness as a vehicle for the presentation of the latest fashions in a shop window, or of an ancient or alien way of life in a museum exhibit. Except in biological exhibits, the museum employs the image of man in a subordinate role, only, as an aid to the understanding of his artifacts, his environment, and his way of life. In this capacity the simulacrum serves as the symbol of a people and not as the portrait of an individual. The museum generally comes to grief if its artist falls for the temptation of Pygmalion and tries to inject life and distinctive personality into his creation. I remember very well an exceptionally fine and realistic sculpture of an Indian woman, with such handsome features and fascinating expression that I do not remember at all what she was wearing. I doubt that I ever noticed it. But I do recall that she was part of an ethnographic exhibit in which she was supposed to demonstrate the marvelous design and fine craftsmanship of her native costume and ornaments. In another museum, another artist,

given the task of exhibiting the clothing and various tools and utensils used by Eskimo children and adults of both sexes, had created such a charming tableau, with such lively facial expressions, that it brought a smile upon the lips of most spectators. A naughty boy was being scolded by his mother, with a younger sister standing by in gleeful admiration, and the father tolerantly enjoying the scene while getting ready for a day's hunting. This was also a very memorable exhibit, unusually effective in communicating the kinship of man, with the same joys and vexations of family life everywhere. But what the exhibit was supposed to show was how the life and possessions of the Eskimo differed from our own, and this, somehow, seemed to have become a matter of utter unimportance to anybody. In short, the legionnaires in the museum are not there to stage the drama of Caesar's death, but simply to show off their arms and armor. They should generally be poker-faced, with good, but nondescript features.

Recognizing that the mannequin in the museum should be a symbol and not a portrayal, the artist may find compensation for the freedom lost for the expression of personality, in freedom gained for inventive abstraction. The effigies seen in stores and museums can therefore run the gamut from realism to negative volumes, bent wire abstractions and even nonobjective substitutions that suggest without representing. But, again, the museum with a lesson to teach must be on its guard against abstractions that become too loud and self-conscious, threatening to drown out the voice of the message to be taught.

Having reached these conclusions about the canons of restraint that must be observed in museum exhibition, I was, at first, puzzled to find that the window displays I most heartily envied and enjoyed were often those that most violated the tenets that guided our own efforts, and, still, they obviously served their purpose very well. The difference lies in the purposes served. We generally take for granted that the function of window display is to call attention to specific articles obtainable inside. When this is true, it should be as important to the store as it is to the museum to watch that the focus upon contents must not be lost among the distractions of the containing design. But when the commodities so often appear only as easily forgotten accessories in the composition of a more dramatic overall design, it seems clear that both merchant and artist must be aiming at something quite different from the mere advertising of goods for sale. The primary goal of their efforts has obviously become the creation of a seductive image of the store itself that will entice the passersby to enter or to carry away a tempting impression in memory for another occasion. Santa and his reindeer, and other fairy tales in shop windows at Christmas time are, perhaps, the extreme examples of the visual subordination of merchandise to a symbolic image, evocative of the joys that may reward a visit inside.

It would be very interesting to know how often, and by what reasoning about stimulus and response, the character of a window display is determined by a deliberate and explicit choice between the glorification of the mart or of the merchandise, and how often the function merely follows the form, as the artist simply takes advantage of the greater latitude for the exercise of creative imagination offered by the fact that if his creation is not perfect for one purpose it may be ideal for another objective.

Although the museums rarely engage in exterior window display, I feel that they could well profit from a study of the dual functions performed by the store windows. We generally deserve well for our treatment of subject contents, but perhaps we would deserve even better if we once in a while could forget our magisterial dignity long enough to do something amusing and appealing for subject image as well.

If the evident primary purpose of many shop windows is to provide motivation for entering the store, it seems natural to wonder why there is practically never an attempt to accomplish this aim by the simplest and most logical of all means: A peek into the interior scene behind the walls and windows. There are exceptions to this rule which will concern us later. I am now speaking particularly about the outlets for general merchandise of which our department stores are the most striking examples. The answer to our query is not difficult to find.

Exhilarated by the gorgeous presentations in the windows we have passed, we move through the revolving doors in a high state of expectation, only to find ourselves confronted by an unmitigated mess that may extend through the length and width of an entire city block, and through many floors above. So long as the stores continue to show that, even in their own eyes, any other sight seen in their windows is better than a view inside, they consciously or unwittingly concede the unattractive quality of the spectacle they have staged within. The exceptions to this shyness towards exposure only confirm our suspicions.

Among the very best of the few really fine shop interiors of recent origin, I always think first of some created or influenced by the artistry of Alexander Girard, and of Illums Bolighus in Copenhagen. It is scarcely a coincidence that the Herman Miller T and O store on Fifty-third Street and the Bolighus are among the very few examples that also come readily to my mind as modern illustrations of the use of windows to let people see what is inside. They have something to be proud of and make a point of showing it. But there are other exceptions with different causes and explanations.

If your stock in trade is automobiles, the size of your commodities makes it quite impractical to keep duplicate samples in separate sections of space for window display and for floor demonstrations. The entire salesroom becomes its own advertisement to the outside world. Piano manu-

facturers often follow the same principles, as do many others who specialize in large items or in articles, such as light fixtures, which demand a spacious setting to be seen to advantage. But cases founded on the internal necessities of the store itself, or simply upon the variability of the human species which renders any generalization imperfect, are much less interesting than that of the self-service markets, whose unobstructed picture windows are certainly not demanded by mechanical problems of operation. Since they have become an almost universal feature of these establishments, one must assume that the picture windows have been found to serve some desired end, although blind imitation and superstition in such matters are probably as prevalent today as ever before. The puzzle of their apparent success is compounded by the fact that the picture windows usually give upon the worst, rather than the best view of the scene inside: the checkout counters and the dreary rows of idly waiting shopping carts. The one thing that distinguishes the self-service centers, basking in self-revelation, from the traditional stores, hiding behind their window displays, is the absence of sales counters barring the public from direct access to the goods that are offered. Since nothing else is done to make the sight particularly appealing, the psychologically effective element in the self-service picture window is probably the implied invitation to step inside and do exactly as you please, as though you were at home. In a sense we might say that while the plate glass of Illums Bolighus projects its image out among the people in the street, the picture windows of the self-service market figuratively extend the sidewalk in among the shelves.

From these observations we must not conclude that the auspicious use of shop windows for an inward look is normally dependent upon the friendly absence of forbidding counters between customers and commodities. We are all acquainted with the old-fashioned groceries and other stores with shelves from floor to ceiling, where the goods were arranged, not according to their natural classification, but according to the storekeeper's sense of esthetic composition. The stock in trade had, in fact, become the medium for a special form of decorative folk art that still survives in other parts of the world. When you recall the examples you have seen, you may remember that window displays commonly fill only the lower portion of the sash, while the rest of the glass gives the window shopper a clear view of the resplendent shelves behind the counter, where the tradesman waits upon his customers. The counter has, in fact, been made a frame for the composition, rather than a detraction from it. But the folk art is lost to our communities, and has not been replaced by professional art, except in the few instances when the genius of an Alexander Girard may find happy expression through the wisdom of perceptive management.

Having dealt with the inside from the outside, as it were, we may now return to the grim experience of actually entering the department store we have been passing by. Before us stretches a vast territory of totally unstructured space, devoid of any topographic clues to directions and locations. Where else than in a department store do you have to read signs or ask questions to find your way to stairs and elevators, let alone discover the whereabouts of the type of goods you are seeking? Even a dog with a head cold can find a hydrant more easily than the most intelligent person can locate the washroom of an emporium. Actually the scene is an almost perfect replica of the dismal museum halls of the first quarter of this century, with their rows upon rows of rectangular table cases or A-cases, according to curatorial preference. But, by the end of the First World War the museums had generally become fully cognizant of the grievous faults of their style of presentation, and they have ever since been busily condemning and replacing everything that could possibly make them look like most department stores do today. Unfortunately, the new forms of display developed by the museums are not so readily applicable to the salesroom, due to the differences in the relationship between object and observer in the two types of establishment.

When I have mildly suggested that the department stores seem singularly adept at making anything the public might be looking for hard to find, I should, in fairness, have made one exception, and that is the automated cattle chute called an escalator, which is well worth a few harsh remarks. I find it very difficult to think of any device that seems to express so little imagination either in its own structure or in the esthetics of its incorporation into the design of the interior in which it must be used. I am not an engineer, but neither am I willing to accept without challenge the concept that escalator movement can only be rectilinear. For example, it does not seem difficult to me to visualize the use of elegant curves and spirals without getting into any serious geometric or mechanical problems. Be that as it may, if we have to continue using the rigid contours of rectilinear escalators, it seems high time that the architects came to terms with its form. A couple of months ago I would have worried about this being an unfair demand, considering the ungainly shape of the contraption. But since that time I have had the pleasure of seeing I. M. Pei's Royal Bank of Canada, in Montreal, where a double escalator is literally used as a centerpiece with very handsome effect. If it can be done, why are not more designers doing it, particularly those concerned with store interiors where the escalators now reach their most obnoxious prominence? But, if we do not rush to the escalator as the only recognizable landmark in sight, we are still just inside of the front door trying to find a course to our destination.

Without having any statistics I have the impression that information booths have been getting scarcer rather than more frequent. At least, they

seem more inadequate than they were before. It is quite possible that they have proved an awkward solution to the problem of traffic direction. In most instances we must try to get our directions from visual cues contained in the space before us.

As a general rule I would suggest that you get a pleasant impression of space so long as you are able to survey the immediate foreground as well as the distant reaches in the same angle of view. This means that sales desks and other optical obstructions must be kept at about hip level. Our neighbors to the north seem to understand the merits of the overview much better than we do. As we let the shop furnishings rise higher and higher we constrain our customers more and more to a worm's eye, or ditch digger's view of the premises, which few enjoy. When the optical plateau rises to shoulder level, and above, it forces the patron to divide his attention between downward glances at the goods and other obstacles in front of him, and upward looks into the space above to determine his course, as an arctic pilot looks up into the sky for reflections of the dark open channels in the polar ice. Of course, it is much nicer to gaze into a blue heaven than into an automatic sprinkler system.

If such unfortunate arrangements are, for some reason, unavoidable, they can to a certain extent be ameliorated by a sensitive consideration of the proportions, and particularly the heights of space above and below the optical base level. For myself I have arrived at the very rough generalization that the space above seems onerous and depressive if it is less than one-and-a-half times the height of the optical impediments below. Beyond such minimal rules, the heights must, of course, also be affected by width, length, form and other factors.

If the furnishings reach, or approach ceiling height I believe there is a point at which a complete change will occur in the visitor's method of orientation. So long as he gets the farthest view by looking up, he will continue to do so, trying to get his bearings as he would in open country. But I venture to predict that, when the upper view is eliminated, most of us will simply switch to the mental pattern in which we observe a street scene or find our way through the interior of a forest. Our eyes come down again, and we again enjoy the comfort of a single level of perspective for all purposes of our movements.

It should be clearly understood that what I have said, and will say, is almost entirely theorizing from the feeble foundations of introspective observations and anecdotal data. I am offering these speculations only in the hope of thereby pointing out the great possibilities of rigorous research that would be as valuable to commerce as to science.

An answer to the problem of pleasing vertical dimensions would still be an incomplete solution for the enigma of how to guide the purchaser to his purchase in a manner that he will enjoy, or, at least, not find annoying. We

still have to contend with the wearisome rectangular grid of floor layout. It would be a great blessing to have the delineators of store furnishings and arrangements add a set of French curves to the T-squares and triangles, that seem to be the only tools most of them are using today.

In addition to the problem of trying to determine where you really want to go, the grid system forces you to choose between going around the nearest obstacle to the right or to the left every third step of the way. Observations by Boutourline and others have shown the importance of "decision points" in determining visitor behavior, and it does not take much knowledge of psychology to realize the tiring effect of having to make an endless series of choices that are without real relevance to main purpose or motivation. And the less there is to choose between at each decision point, the greater the strain of deciding. The customer who gives up, and leaves the store in disgust, may well be compared with the donkey that starved to death between two bales of hay because he could not make up his mind between them.

In the museums we have been greatly concerned about the causes of museum fatigue. I am convinced that our failure to provide adequate spatial cues for the guidance of our visitors, and the consequent creation of an obstacle course of meaningless decision points along his route, is one of the main sources of museum fatigue. I am also convinced that the stores are even worse offenders than the museums in this regard, and I often wonder how much the mail-order business may depend on poor point-of-sales layouts which offer no aid to the orientation of the customer.

Of our visitor we should only demand a decision on what he may want to see or to buy. The task of museum or store design must then be to guide him to his goal with minimum wear and tear upon his peace of mind by a continual need to make irrelevant and immaterial choices of direction along his course. This does not in any way imply that we cannot expose our guest to unexpected sights and temptations *en route*. A stroll up Fifth Avenue does not interfere with our enjoyment of an errand to George Jensen's or Tiffany's.

In order to accomplish our task we have only our intuition to guide us today. We here have another instance in which trade and visual education would both benefit greatly by rigorous research done within the premises of either one. Perhaps they could get together about a program of investigation. In the meantime one can only offer some suggestions to try out.

It seems probable that any establishment large enough to be tiresomely confusing to a significant number of its visitors might profit both in good will, and in coin of the realm, by setting up an orientation area at its main entrance. Even though the medium of communication might be purely visual rather than personal, it would help to create a feeling of welcome and that sense of security that springs from the ability to anticipate the

principal choices and experiences one will be exposed to during the visit. But, for the orientation area to be effective, the space beyond must also be designed to offer landmarks and suggestive configurations of space as cues to movement and behavior.

Basically the premises should be designed to create an easily understood pattern of traffic flow with main streams and tributaries, and with emphasis upon comprehensibility based on the visitor's normal method of orientation in his surroundings.

I hate to set goals for others without being able to contribute anything towards their achievement. Not being a designer I was thinking rather desperately of how I would go about it if I was told to do what I have just suggested.

I believe it is true that almost nobody ever feels lost on a short visit into a natural outdoor landscape, at least not to the extent that almost anybody can feel lost on an even shorter expedition into the bowels of a museum or emporium. Is it possible to create in interior space a landscape as directional, understandable, and reassuring as almost any scene outdoors? The question suggests a field of creativity we might call topographic design. If an unfriendly tyrant should force me to tackle a problem of topographic design myself, as a bungling tyro, I could only literally try to visualize a miniature landscape that might fit the premises and then translate its surfaces and volumes into goods on display. In this manner I might end up with Food Ranges, a Textile Valley, Appliance Mountain, Silver Lake, and China Hills. A skilled designer would, of course, have command of much more direct ways of arriving at much better solutions.

The form of topographic design that has just been suggested uses primarily the overlook method of visitor orientation. Most patrons are also well accustomed to sequential orientation in channels of space such as streets and avenues, or paths in the woods. With this in mind one could arrange specialized units of space along logical traffic arteries, taking advantage of the full height of the premises. This might ultimately lead to store fronts within store fronts. I have seen at least one attractive example, that may herald the beginning of a trend in that direction, in Eaton's College Street Store in Toronto. And is not the modern shopping center really an example of stores within a store? I have a suspicion that one of the strongest attractions of the shopping center is that it still permits you to feel uncommitted and at ease in its mall, even though you have actually entered the overall premises, while in the department store you are committed and fighting from the moment you enter. And does not the mall of the shopping center also function as the orientation area the department stores need so badly?

In speculating upon form elements that make the designed environment of museum and shop interiors more pleasing and creatively stimulating, I

have recently been made aware of special merits possessed by tall, open domes and multistory interior courts surrounded by the open galleries of the upper floors. While visiting a museum apologetically arranged around such a covered atrium inherited from the past, I asked my wife how she felt about it. Her answer was that she liked it, and particularly because it made her feel less tired than the exploration of a museum of such size normally would. This is one of those things I wish I had said myself, because I believe it expresses an acute insight into a rather complex response to environmental design, that would not be too obvious on the surface. However, it does show the value of making your wife a partner in the study of museums. After it had been pointed out to me, I discovered that my own reactions, which I had not yet defined, also fitted my wife's observation, and I believe most museum visitors would find the same if they were to explore their own responses. There are probably three interrelated factors involved if a dome or an atrium produces such desirable effects.

However many stratagems are used to maintain a progressive change of pace through the rest of the establishment, a large negative volume included in the edifice always produces a change of its own, different from all the others, like that of emerging from the galleries into the main chamber of a cave. But, more important than the change of pace, is the fact that a grand aperture, penetrating the continuities of all the floors, becomes a landmark helping the visitors to maintain their sense of orientation throughout, and thereby greatly reducing the wear and tear of decision point puzzles. Thirdly, because he returns to it again and again, on different levels and from different directions, the void amidst repletion becomes a redundant experience, helping the visitor to feel at ease in his surroundings. Psychologists tell us that redundancy of events and perceptions is essential to a feeling of security. So long as we can "recognize" what is happening to us by relating it to something that has happened before, we feel comfortable and undisturbed. But the redundancy must not be complete,—not an uninterrupted exposure to an unbroken series of identical situations. It must be the redundancy of similarities among the dissimilar. That is why the rice pudding texture of old-fashioned museum halls and current department store interiors merely proves confusing and fatiguing, while old-fashioned domes and atriums may provide reassurance and rest for weary minds. Both the halls of commerce and of visual education are surrendering their tall spaces to the demands for floor area. Both might do well to investigate very carefully whether they are not giving up more than they have bargained for.

I realize that my remarks may have laid me open to two kinds of suspicion which I must now try to allay. You might think that I merely want the mass markets to look more like the restrained salesrooms where the exhibits are few and choice, and the customers are clients. Nothing could be farther

from the truth. I am an ardent advocate of abundant display, without being an opponent of lean and select exposition. Both styles have their special functions, and should be used together, each for its proper purpose. The advantages of the copious array is that it offers the public an opportunity to enjoy the adventures, the rewards, and the lessons of exploration according to individual taste and vim, rather than superior dictum. Impulse learning and impulse buying both depend on proper opportunities for personal quest. But even exploration becomes dull in random and shapeless space. It needs an horizon, a mountain peak, or something half-hidden around a bend in the valley. Again I would like to suggest the grandeur of great domes as a stimulus for the urge to explore.

By my attempted rebuttal of one suspicion I may have succeeded only in strengthening another mistrust, namely that I dislike the prevailing trends of modern architecture and design. This is not quite true either, although there may be some truth in it. I, too, will go far out of my way for the thrill of admiring the soaring surfaces of good modern architecture, even while my mind tells me that the purity and simplicity that so stir my feelings when I look upon the structure as a work of art, are also the very reasons why this type of design is utterly inadequate to provide the major contents of the field of vision block after block, hour by hour, and day by day, for those who have to live and work in its shadow.

I am firmly convinced that man has a craving for sensory intake quite comparable to his bodily appetite for food. In the normal hierarchy of his demands for perceptual nourishment his visual needs probably rank first, with auditory needs second, and so on. This means that we have a need for the environment to provide what Boutourline speaks of as a high visual inventory for our subconscious as well as our conscious mind to feast upon through our eyes. A high inventory does not simply mean one made up of many separate parts. They must also be different parts, or features, and must differ in a meaningful way. Grain in a bin does not offer a high visual inventory, nor do large and simple facades with endlessly repeated identical fenestration. But an old-fashioned street with gingerbread and columns, stoops and stairs, ash cans and clashing colors, and not two houses alike, does present a richly varied image, for all we may justly say against it otherwise.

A good deal is known about the consequences of extreme sensory deprivation but nearly nothing about the effects of lesser but sustained sensory deficiencies within the normal range of human experience. However, in order to indicate the far-reaching possibilities, let me postulate that there might, for example, conceivably be some functional relationship between modern architecture and juvenile delinquency.

An adventure is a happening you could not have entirely foreseen. The adventurous spirit of the young is therefore a craving for unpredictable

experiences. In another age and in a less well-regulated environment, built on a smaller and more human scale, this craving could in a large measure be satisfied by exploring the diversity in space and variability in time to be discovered in the surrounding milieu. As we make the surroundings more and more uniform, well regulated and predictable, we force the adventurous to resort more and more to irregular, unpremeditated or rebellious behavior as a source of the unpredictable experiences the perceptual environment no longer provides.

In conclusion let me say that I am not convinced that the architects' faith in the simplicity of purely mechanical functionalism is nearly as strong as some of them try to make it sound. The way in which many architects plan for the intrusion of flora into their architecture may be significant. You will recall that the rococo, also, derived most of the plastic elements of its decor from the vegetable kingdom. Our tastemakers have driven the rococo out of existence. But what critic of art or architecture would dare to criticize the most miserable rubber plant for not growing its leaves properly? Could it, therefore, be that modern architecture, in a feeling of guilt about the sensory deprivation it inflicts upon the public, is now substituting potted rococo for the gilded rococo of another era, while finding escape from criticism in the safety of potted palms? It is only a question, of course.

Reprinted from THE YALE REVIEW vol. LV No. 1, Autumn 1965

CITY AND PSYCHE

By A. E. PARR

THE creeping blight of monotony in our surroundings, particularly as they present themselves to our sense of vision, has been bewailed by people of so many different talents, interests, vocations, and avocations that their criticism must express a widely felt sense of want. Even such an ardent advocate of "show-the-bones" constructivism in architecture as Ada Louise Huxtable often joins the chorus. And who among us has not felt a gradual nibbling away of incentives for a stroll in our streets as the richly varied revelations of individual tastes in small buildings give way to the endlessly repeated unadorned forms of modern architecture? Who can fail to share William H. Whyte's appreciation of "at least one hideous house to relieve the good taste"?

Actually nobody is even trying to deny the progressive elimination of visual complexity and copious detail. On the contrary, our designers take great pride in having condemned and discarded all "applied ornamentation" in order to frame our lives in endless vistas of "clean façades," as pure as laundered sheets drying in the sun, but less lively. In this stern environment we walk when we feel in need of the exercise, or when the dog has to go, but we do not promenade for the visual pleasures of varied experience.

James Marston Fitch has summed up the stylistic criteria of modern architecture as "simplicity, economy, and efficiency" but finds it "apparent that above and beyond physical performance, laymen ask something more of buildings, some quality which they have found in the traditional design and miss in the modern one." Fitch identifies the missing quality as "sentiment" but expresses no suspicion that the popular demand may spring from a true organic need for perceptual stimulation, and not merely from the mental and sentimental habits of mind that determine only the particular form of our sensory appetites in a certain age and tradition. Sullivan's "Autobiography of an Idea" offers a

moving ode of gratitude for the wonders and values of varied experience in his early life, even when he speaks with a touch of asperity about some particular recollection of his past.

But unless we can show that diversity is actually good for us, perhaps even essential, and not merely gratifying to our senses and sentiments, our wishes will never alter the dictates of society's arbiters of taste, or prevail against them. This is easy to understand, for several reasons. Unless our critics are merely going to echo the commonplace, a prime prerequisite for membership in their exalted circle must obviously be a hearty dislike for anything that a majority of their fellow men relish and enjoy —at least until the object of attention disappears from daily life and becomes a relic of the past, which our experts may then have the pleasure of rediscovering without having to peer over the shoulders of the crowd. In the meantime those who seek satisfaction for their visual hunger beyond the precincts defined by current esthetic doctrine are harshly denounced for the "consummate vulgarity" of their "parvenu love of the novel, the flashy, and the bizarre." It is enlightening to examine how consistent defenders of the faith are in interpreting and applying esthetic dogma. According to Miss Huxtable "architecture is properly the expression of structural techniques," and Frank Lloyd Wright has ruled that "all ornament if not developed within the nature of architecture and as an organic part of such expression, vitiates the whole fabric no matter now clever or beautiful it may be as something in itself." It would be very difficult for any unprejudiced person to see the risers, wastelines, traps, and fixtures of our bathrooms as expressions of the "structural truth" of architecture, and not as applied features added for the despised purposes of convenience, if not outright luxury. But applied plumbing for the comfort of our bowels is splendid, while applied ornamentation to ease the hunger of our minds is beneath contempt and "treason to modern architecture." It is amusing to see a critical exponent of modernity become more lyrical about the Seagram executives' men's room than about almost anything else he comments upon. Evidently the room is a little gem of ornamentation that probably has little to do with

its functions, and even less to do with the expression of the building's structural technique.

Conceding a battle they are only rarely able to win, many architects try to avoid artistic conflict by recognizing interior decoration as a field apart, not governed by the rules that apply to building-design, but generously set aside for the individual self-expression of owner, user, or decorator, with applied ornamentation and other "extraneous" garniture entirely permissible. But the tactical expedient of such an arbitrary division of esthetic domains has lost all semblance of logical justification in the urban communities of our megalopolitan age. In the open space of the countryside, a farmhouse, a mansion, or a castle are only scattered objects in the broader vista of the landscape. In an urban environment all spaces are enclosed, and the exterior aspects of the buildings form the interiors of the cityscape. Life in our cities is an inside life in the womb of urban architecture both indoors and out. The conflicts or uneasy compromises between architectural design and interior decoration that we see all around us bear wistful evidence of frustrated yearnings for a visually more abundant mode of existence.

A psychological want need not be consciously felt and verbally articulated to have organic reality. Neither is the strongest and most volubly expressed desire necessarily proof that something of genuine value is lacking. We must look in other directions for objective evidence of the demands actually placed upon our environment by our minds and bodies. Since it would not be permissible to use human beings for experiments with conditions that might have permanently detrimental effects upon the mind, the confirmation or refutation of any working hypothesis that seems reasonable in its premises will have to come chiefly from the study of our nearest relatives of the animal kingdom, with ex post facto observations of the human condition serving to verify the validity of the observations for our own species.

It would seem logical to assume that just as our bodies need food and exercise to grow strong and healthy, so does our brain need an adequate sensory intake and stimulation for its optimum

development. And the measure of our perceptual diet is obviously not how much we perceive, but how many significantly different images our senses transmit to our minds—in other words, the diversity rather than the repetitive quantity of our experiences. These common-sense expectations are amply confirmed by experiments with mammals other than man. Donald W. Fiske and Salvatore R. Maddi, and their many collaborators in *Functions of Varied Experience,* have assembled and abstracted much of the pertinent evidence, including the results of their own research, and conclude that "there is certainly evidence that the more variable of two early environments produces an adult organism that is perceptually and behaviorally more alert, flexible, and able to cope with change." D. O. Hebb puts it even more succinctly when he states that "perceptual restriction in infancy certainly produces a low level of intelligence."

The problems of the space age have caused man to experiment upon himself with the effects of environmental conditions that are much more drastic than most of those tested upon other species, but also of shorter duration relative to total life span. The most widely dramatized of these investigations examine the impact of what is as nearly as possible complete "sensory deprivation," that is, the exclusion of all sensory stimuli. Of more interest to our subject is probably the work of Woodburn Heron and others which did not have for its purpose to "cut individuals off from any sensory stimulation whatsoever, but to remove all pattern of perceptual information," or, in other words, to expose the subject to complete monotony. In these circumstances Heron found a definite impairment of thinking, among other results that we will come back to later.

Many of the investigators also point out that, beyond a certain maximum, varied experience may itself become overwhelming and deleterious. This, however, scarcely needs to concern us much for the next hundred years insofar as our visual environment is concerned, when we note the direction in which urban architecture and environmental design are now pushing us.

There are, then, rather abundant indications of a possible relationship between diversity of milieu and mental capacity, at

least under experimental conditions. But alertness and level of intelligence do not uniquely determine pattern of behavior. Heron has found that "the higher organisms actively avoid a completely monotonous environment." When Jane Jacobs asks why it is that "office workers on Park Avenue turn off to Lexington or Madison Avenue at the first corner they reach," and why short blocks are apt to be busier than long ones, her queries actually corroborate Heron's general assertion. The questions also suggest some very interesting examples of the manner in which Heron's principle of avoidance of monotony may affect urban life and economy.

Welker (in Fiske and Maddi) assigns a somewhat more positive role to the responding organism when he expresses "no doubt that animals tend to produce or seek certain levels of stimulation." Rolling along on a particularly monotonous stretch of highway we are quite likely to find ourselves unintentionally driving much faster than we realize, until we take a look at the speedometer, and this inadvertent haste may simply be the manifestation of a subconscious effort to compensate for lack of variety in the environmental image by increasing the rate of change of scenery, or, in other words, by substituting diversity in time when the diversity in space proves inadequate. Boutourline also noticed among pedestrian spectators at the Seattle World's Fair a tendency to walk faster when the contents of the surroundings decreased in the direction of travel. If empty space actually speeds the visitors on their way, it occurred to me that the theories generally followed in attempting to create "restful" intervals between museum exhibits may well be totally wrong, and this suspicion has also been reinforced by new information.

But the guise in which the pursuit of stimulation becomes most important to our main theme is best revealed in the aspects of behavior that we associate with the spirit of adventure. The craving for adventure, which generally finds its strongest expression in the younger generation, is actually a demand for experiences that cannot be entirely foreseen. In the old days when each block had a dozen façades, and one street did not show you

what the next street would look like as well, this youthful hunger for the unexpected could be satisfied by simple exploration of the surroundings, which seems to be the natural outlet for the urge, turning its promptings into an asset in the struggle for existence. From his studies of monkeys Robert A. Butler concluded that they, and presumably all primates, have a strong motive toward visual exploration of their environment. As we make our cities more and more uniform by design and regulations, we rob exploration of its rewards, till we force the young to seek the stimulus of the unexpected in their own unpredictable behavior rather than in a too predictable milieu. On the basis of this reasoning I have already postulated elsewhere that there may quite possibly be some contributory positive connection between modern architecture and juvenile delinquency. A similar thought is expressed by Roul Tunley, when he "wonders how many of our restless, energetic pioneer heroes would have been juvenile delinquents if compelled to live today in our towns and cities."

In his interviews with authorities and experts and his search of the literature, Tunley found wide general agreement that a thirst for adventure, rather than a basically antisocial attitude, is at the bottom of most delinquent behavior. He also encountered frequent spontaneous expressions of the opinion voiced by the New York City gang-work supervisor who told him that "as far as the kids are concerned, the old houses were far better than the new ones." These findings on the nature of juvenile delinquency are not merely subjective illustrations of wishful thinking. The Gluecks, for example, in *Unraveling Juvenile Delinquency* can report that 47.9 percent of delinquents compared with only 9.5 percent of non-delinquents studied by them "expressed a preference for adventurous activities." All of these observations and conclusions point toward a need to restore to the cityscape a degree of diversity that will again establish a natural and beneficial outlet for the spirit of adventure in exploration rather than unpremeditated behavior which so often turns out to be misbehavior. But in order to accomplish this task we need a far greater and more precise knowledge of the relationship be-

tween diversity and curiosity than anyone can offer today, and we need the information in terms that our environmental designers can apply to their tasks. Again we find a vast and urgent need for research in environmental psychology.

Before we continue it may be well to attempt to correct a frequent misunderstanding. The planning of a small village, or even of group housing for agricultural labor, is often discussed as if it were a small-scale example of urban design, or, at least, a pilot experiment. But it is not. When we are merely creating a shelter for intermittent temporary withdrawals from the natural surroundings, mostly at night, we can rely upon nature to continue to provide the diet of diversity demanded by our mental appetites. Urban design does not begin to face its real tasks until community development passes the point where the man-made milieu becomes a replacement of the natural setting and not only a protection against some of its elements. The critical dimension might be looked for in the extent to which the average radius of action of a child in its formative years is contained within, or extends beyond the cityscape, or in some other criterion similarly related to psychological needs.

The method of dealing separately with different aspects of our outward behavior and our psychological reactions must in no way be taken to suggest that these are in fact independent phenomena. The thirst for adventure and the behavior to which it leads obviously play a tremendous role in the process of learning and the development of our intelligence, which we considered first. So, also, are the emotional factors that may lead to delinquency inextricably involved with the elements of intellectual curiosity that govern the individual in his explorations or his misbehavior.

We seem to have been happily reassured that delinquency in most cases springs primarily from a healthy, but misdirected spirit of adventure, which might easily have been turned to better uses. Nevertheless, there can be no disputing that emotions are always involved, and may, in situations for which they are badly adjusted, become the primary cause rather than a minor corollary of objectionable and harmful behavior. In exploring our affec-

tive responses to the environment it is convenient to make a distinction between diffuse emotional tones, or moods, and feelings that are oriented toward a definite focal point. We may simply be in an angry mood, or we may be angry at something or somebody. That our perceptual environment continually influences and can sometimes dominate both our moods and our specific feelings is hardly open to debate. Our language and literature are full of expressions attesting to our common knowledge of such relationships between mind and milieu. We speak of threatening mountains, blissful valleys, depressing city canyons, cheerful gardens, and so on. The entire art of stage design is based upon the assumption that our emotional state is directly influenced by our visual surroundings, and theatrical experience abundantly proves the validity of its premise. It is interesting to note that stagecraft commonly uses architectural motifs for the strongest impact. For these reasons it might seem logical to expect that there would be a great deal of knowledge at hand concerning the relationship between environment and emotions. But in this expectation we are badly disappointed. Everybody knows that the field is there, and many have tried to describe what it looks like as seen across the fences of other disciplines, particularly through the eyes of artistic intuition. But nobody seems to have made the field his own and subjected it to the rigorous scientific examination so urgently needed to direct the steps of our progress.

In all this welter of ignorance and guesswork there is one phenomenon on which everybody, from mystery writer to social commentator, is in such universal agreement that it becomes impossible to doubt the presence of some reality behind the words. Described in an infinite variety of ways, the observations assign to the physical environment itself the power of inducing or enhancing a sense of frustration and insecurity among its inmates. That these states of mind and emotion may also spring from numerous other causes is not the point, but that the nonhuman milieu may function as an independent cause among the others. Harrison Salisbury has spoken of "the crushing anonymity, loneliness and ugliness of high-rise apartments." John D. MacDonald refers to "disposable cubicles for dispensable people,"

and "bright boxes which diminish the people who (have) to live and work in them." We could go on quoting at length from those who might perhaps be listed as unfriendly witnesses against the developing cityscape. Probably more effective confirmation can be obtained from the utterances and assertions of the leaders and apostles of modern architecture.

According to Walter Gropius *"Functionalism was not considered a rationalistic process merely. It embraced psychological problems as well. . . .* We realized that emotional needs are just as imperative as any utilitarian ones and demand to be satisfied." In the pursuit of this ideal, functionalism has subjected all the statics of structure and all the properties of materials to the most rigorous and objective study. But it seems impossible to find any evidence of similarly exacting and impersonal research directed toward the discovery of the environmental configurations and conditions most conducive to intellectual vigor and emotional satisfaction. One gathers the impression that it was considered superfluous to explore the actual needs of the psyche, since artistic intuition clearly reveals what the needs ought to be, whether that is what they are or not. Giedion tells us that the architect "like all real artists, has to realize in advance the main emotional needs of his fellow citizens, long before they themselves are aware of them." In the circumstances one should perhaps not be too surprised by the reappraisal of the functionalist movement offered some twenty years later by one of its ardent admirers, Nikolaus Pevsner, who states that "it is the creative energy of this world in which we live and work and which we want to master, a world of science and technology, of speed and danger, of hard struggles and *no personal security,* that is glorified in Gropius' architecture, and as long as this is the world and these are its ambitions and problems, the style of Gropius and the other pioneers will be valid." (Italics added.)

From the day a man first laid one stone upon another the purpose of building has been to shelter us against the weather, protect us against enemies and dangers, and shield us from the terrors that dwell in the anonymous darkness and distance beyond. According to Pevsner, functionalism has put an end to much of this. To calm our fears and make us feel secure in our surround-

ings is no longer a purpose of architecture. The proper aim should be to glorify, and thereby reinforce, our anxieties, instead of trying to ease our tensions by the design of our milieu. This attempted justification by complete perversion of the natural and logical reasons for building is actually the strongest possible condemnation of what it would defend.

There are today many brilliant defectors from the narrow creed of rigid functionalism. But the goal of their rebellion has generally been the achievement of individual self-expression, which demands inquiry only into the artist's own esthetic reactions and his creative ability to fit an expression of his personal taste to the material functions and purposes that must be served by his design. The need to investigate the general relationship between mind and milieu that the functionalists ought to have felt can obviously not have as much meaning to the true believers in polymorphous architectural individualism. We must be deeply grateful to the rebels for having retarded our descent toward monotony, but it has not been within their aims to advance the kind of research that might change the clearly esthetic aspects of design from a pure to an applied art. It is, therefore, still timely for others to reaffirm that it is one of the first responsibilities of architecture not to express, but to alleviate, the pressures that burden our minds and dampen our pleasures. We can no longer leave it to the architects to divine our needs in a Delphic daze. There are better ways of discovering what our actual wants are. Giedion has revealed the problem very clearly in his statement that "aesthetic impacts influence us at all moments. Consciously, or in most cases subconsciously, they provoke friendly or hostile reactions." And Yamasaki (according to von Eckardt) has pointed to the solution we must seek in the creation of buildings that can give us a sense of happiness, peace, and security. But the search itself lies in the field of psychology, and its success can only be insured by using the rigorous methods of scientific inquiry to determine the needs, which artistic genius may then be able to meet.

If we could find a way to bring about the personal happiness of every member of the human species, any distinction between private feelings and emotional responses of broader social

concern would lose all meaning. But while we are still trying to reach the millennium through our vale of tears, it is useful to recognize that there are some sentiments such as the joys of accomplishment, the pleasures of a beautiful sight, and even the love between a man and a woman, which seriously influence only a narrow and intimate circle, while other emotional states may have consequences quickly involving human relations on a wide scale. With the tensions that plague the world today one of the problems that must concern us most is the unanswered question of whether or not a state of increased irritability can be directly induced by the environment.

It was reported by Anitra Karsten as long ago as 1928 that the effects upon human beings of prolonged repetition of the same activity included a growing nervous tension and an increase in emotional outbursts. Under more extreme conditions of isolation in a completely monotonous environment Heron also found that the subjects became "markedly irritable" and developed "childish emotional responses." There has so far been nothing to suggest that urban monotony and experimental monotony should differ in anything but degree. Is it not, therefore, within the realm of possibility that lack of diversity in the one may have effects quite similar to those resulting from uniformity in the other? If such a contingency is even conceivable, does it not become a compelling moral obligation for those concerned with the design of our environment to see to it that the possibilities are fully and competently investigated? Perhaps the intuition of a mystery writer is not too far wrong when John D. MacDonald wonders if "the hideous new, tax-shelter buildings" have not "played some significant part in creating New York's ever-increasing flavor of surly and savage bitterness." In the broader and more positive terms of B. V. Doshi and Christopher Alexander "mass-produced, mass-design-regimented houses and offices stunt (man's) spiritual and esthetic development and eventually destroy his mental wellbeing."

We are not here concerned with the qualities and impact of outstanding single masterpieces of modern architecture, but with the changing total composition of cityscapes in which "less able architects have been released from the imperatives of origi-

nality" as remarked by von Eckardt, who feels that "architecture is better for it." But what about the people? In the absence of verifiable facts there can, of course, not be any agreement about specific relationships between environmental configurations and emotional states, but there is an impressive consensus of opinion that such relationships do exist and are, in fact, omnipresent.

Every thought and feeling we experience leaves its traces on our personality. If enduring features of our surroundings provoke steadily predominant moods or frequently repeated emotional responses, the conclusion seems inescapable that the environment itself may be a major determinant of personality. Both folklore and literature make numerous allusions to the molding of character by the encompassing features of country and community. The plainsman is molded by the plains, as naturally as a tumble-weed. The sailor reflects the temper of the seas in every thought and feeling passing through his mind. Mountain people living in the ominous shadows of looming precipices become introvert and coercive in their attitudes toward others, while the inhabitants of the wide and pleasant valleys are extrovert, gay, and tolerant. There are almost certainly many important kernels of truth hidden in the substance of these legends, impressions, and subjective beliefs, which receive a kind of lefthanded confirmation in the authoritative voice of Harold F. Searles, who concludes that the maturation throughout life of the individual personality needs to be seen as "inextricably a part of . . . a matrix comprised not only of other human beings but . . . of predominantly nonhuman elements—trees, clouds, stars, landscapes, buildings and so on *ad infinitum*." But impersonally tested evidence is, again, almost totally lacking, although it should not be very hard to obtain if our anthropologists and social psychologists would apply to the study of human behavior the method of multiple correlations that has proved so fruitful in animal ecology.

From the subjective testimony of numerous articulate and sensitive witnesses to the human condition, through introspection, and by extrapolation from facts gathered more objectively in the observation of other species, there seems to emerge a

strong suggestion of important cause and effect relationships between our perceptual environment and our mental development, our rational or senseless behavior, our amiable or irritable tempers, our emotional responses in general, and our total personalities. And through it all runs a clear intimation that perceptual diversity beyond the confining limitations of any currently fashionable esthetic doctrine may be an essential need of the human psyche. If these are factors of importance today, will their importance become greater or less in the future now being shaped by the population explosion? Again we must turn to the study of animal populations for analogous information that may help us to devise a working hypothesis for human psychology under the pressure of increasing numbers. The investigations on rats conducted by John B. Calhoun seem particularly enlightening and pertinent to our inquiry.

As the population pressure increased Calhoun noted the appearance of several groups of deviant individuals with patterns of behavior that are not normally present in the hierarchy of a rat community. Below the dominant males both in status and in level of activity the homosexuals or pansexuals make their entry into rat society. Another new group, called the "probers," have given up all dreams of social prestige. They take no part in the fight for status, but are otherwise hyperactive both sexually and in other respects. They seek locations where they can stare in upon the females in the brood pens, but flee, only to return later, if a dominant male so much as looks at them. When opportunity presents itself to attack an unprotected female they dispense completely with the courtship ritual observed by all decent rats, and will not tolerate a short wait. All of which adds up to a very good description of the Peeping Tom-rapists who plague our own over-concentrated communities. The worst thing about rats is that they act so human. In high density rat populations there also appears a third new type of animal, which Calhoun politely calls the somnambulists and others more rudely refer to as zombies. The zombies take no interest in either sex, and social status leaves them totally indifferent, but they like to eat, especially when the others are not feeding and fighting them for the food. The zombies are the fattest of the rats, with the

sleekest fur. I have an uneasy feeling that I should recognize these unfortunate characters in our own society too.

These deviationists among the rats may help us to understand better the aberrant members of our own species and the circumstances that lead to their presence in significant numbers. But of more immediate interest to our discussion is Calhoun's report that even the dominant males that retained the most normal behavior also in the over-crowded population exhibit occasional signs of pathology by "going berserk," attacking females, juveniles, and others toward whom they would normally act in a peaceful manner. Such observations suggest the terrible possibility that the population explosion by itself alone may bring about behavioral and emotional instability at the very time when the need for calmness and constancy of attitude and action reaches a maximum.

The relatively phlegmatic way of life in rural solitude is accepted as a fact of human experience everywhere. It is a trait that has been featured in stories and jokes as long as there have been cities to compare with the rustic condition. By reverse implication this also ascribes a more choleric temper to the crowded multitude of the urban centers. Man seems to follow the example of the rats in this, as in so many other things having to do with behavior.

At this point we may seem to be preparing a case for the control of population growth, and the evidence certainly points very strongly toward the need for such action. But this important topic is not the subject of these comments, which have merely been building up to the almost casual remark by Calhoun, confirmed by other investigators, that "space requirements may be restricted with appropriate structural configurations." In other words, environmental design may ameliorate or, at least, defer the psychopathological effects "directly attributable to overcrowding" (Hudson Hoagland), thereby, perhaps, giving the world time to ward off the even more drastic consequences that might flow from the untimely development of mass irritability and pugnacity.

In the life of man, and probably also in the life of the rats, we

shall undoubtedly find that among the most important factors in the spatial pattern that makes population pressures less intolerable and exasperating, are the chances the environment offers for privacy. It is hardly a coincidence that the nation particularly noted for its ability to maintain privacy in congestion is also rightly famous for its capacity to remain calm under stress.

At the human level, at least, the need for privacy is a complex desire which cannot be satisfactorily fulfilled by simple isolation in the anonymity of featureless cubicles. It also demands opportunity to identify with a distinctive personal domain, which, in turn, puts a premium on diversity. Wherever we pry we seem to uncover some good reason to suspect that diversity may, indeed, be a great virtue in itself, and should, perhaps, be made one of the crucial tests of true functionalism. However this may be, it is time to recognize that design is a communication from mind to mind, not from mind to body. Functionalism of structure and physical purpose is essential, but only as the inert matrix on which the higher values and utilities serving our mental needs must be impressed.

The challenge to environmental design is obvious in the statement by Searles that "whether in surroundings that are largely natural or largely manmade . . . this environment, far from being of little or no account to human personality development, constitutes one of the most basically important ingredients of human psychological existence". The psychologists can not design our surroundings. That is not the field in which their talents and training lie. Nor do they, as yet, have very much to contribute of concrete and applicable information concerning specifically human demands upon the structural configuration of space. But, with a little incentive and more support, a usable body of knowledge could be rapidly developed, so that factual psychological information can begin to replace fatuous esthetic doctrine as a tool of the designer's art.

If we wish to achieve a lasting peace among all people, safe against the emotional epidemics of a crowded planet, we must learn to design our environment for mental health and peace of mind. Summit conferences may not be enough.

IN SEARCH OF THEORY VI

By A. E. PARR Senior Scientist
The American Museum of Natural History

Reprinted from
ARTS & ARCHITECTURE
September 1965

IN SEARCH OF THEORY VI

BY A. E. PARR *Senior Scientist*
The American Museum of Natural History

Since a large part of the input into our minds, from the day we are born, comes from the perception of our environment, it would be entirely illogical to assume that our surroundings do not have a great deal to do with the development of our mental powers, patterns and prowess. The presence and importance of such influences emanating from the milieu is borne out by all evidence available from studies of animals under controlled conditions, from human experiments with artificial sensory deprivations, from psychiatric experience, and from psychological, pedagogic and sociological observations of human behavior. The merits of the work already done are great, but the sum total of precisely defined information is very slight—barely sufficient to warn about the dangers that may lurk in the perceptual habitat, but utterly inadequate to establish usable guide-lines for those who design our environments.

The designers, on their part, have contributed to the deficiencies by their failure to live up to the requirements of their oft-declared high purpose of embracing psychological problems, as well as the physical ones, in their efforts to provide for our needs. These sins of omission seem to stem from a combination of negligence and arrogant assumption that the knowledge needed for the proper environmental care and feeding of men's souls is already at the designer's command by virtue of his intuition. The devotion of modern architects to the study of the physical properties of materials, and of structural features, is well known and universally acknowledged. But it is difficult to find any evidence of equally vigorous encouragement, promotion or sponsorship of investigations into the stresses of the mind that their own designs might create or alleviate. Such matters have been left to artistic conviction without benefit of research, perhaps in a subconscious and mistaken fear that knowledge of the dynamic principles of harmony and pitch might hobble a composer's creative genius.

An attempt has been made elsewhere to summarize the shortcomings of the current situation and outlook, the dangers that may be concealed by our ignorance, the logic of such evidence as does

exist, and the pressing need to obtain applicable knowledge of environmental psychology by rigorous research on a vastly greater scale than has previously been urged and supported. But it is not enough to set a goal for increased effort. We also need a strategy and tactics for its attainment. It is the purpose of the following remarks to attempt to offer some tactical suggestions for a first approach toward the achievement of the over-all aims of our inquiry. It is hoped that the reader will bear in mind that even the sum of all tactical measures can never present the neat, compact and complete intellectual structure of a statement of faith and final intent.

Valid conclusions about the direct influence of the inanimate environment upon human feeling, thought and action demand that very careful distinctions be made between spontaneous and contrived or coerced behavior. As a ridiculously obvious example one may mention the fact that the flow of traffic in a one-way street is no indication of a directional spell cast by architectural configurations. Unfortunately, the situation is only very rarely as simple and evident as this, and very painstaking analysis and controls will often be required.

The scale and complexity of urban existence make it clear from the start that neither field observations nor experiments, alone, will suffice. Both must be combined. It is impossible to evaluate a single factor without control of the others. It is equally impossible to feel sure of having discovered all the factors, and their manifold interactions, without observations on the full scale on which they operate in "real" life.

In order to apply experimental results to the understanding of uncontrived behavior, and in order to design experiments for such purposes, it is necessary to determine the form and dimensions of space in which an individual normally interacts with his environment when not constrained by experimental conditions. Two magnitudes of space are involved.

Territory is the space which a person, as an individual, or as a member of a close-knit group (e.g., family, gang), in joint tenancy, claims as his or their own, and will "defend." There is a considerable literature on territoriality in the animal kingdom, and some, but very far from enough on human territoriality.

Orbit is a term I use to define the much wider concept of the space through which an indivi-

dual habitually or occasionally roams. The orbit may contain two or more territories (e.g. home, office) in addition to all other space traversed or only irregularly occupied by the individual.

Both territories and orbits have to be analyzed in considerable detail with regard to frequency and duration of tenure or transience in their various sectors, and to the freedom or restraint of the various senses in the perception of the environment. On a path traversed exclusively by automobile, vision offers virtually the only channel of sensory contact with the exterior surroundings, in a situation that is actually very similar to the contrived circumstances of certain experiments in animal psychology. But it would be a reckless oversimplification to assume that the only distinction that needs to be made would be the separation of transients by car from residents on foot or in rocking chairs.

An investigation of orbits and territories is not merely essential to other studies, it also involves interesting problems and possibilities of its own, of which some may be mentioned here.

Not long ago stores and office buildings were the joint occupants of a central business district in most cities. The wives did an important part of their shopping in the district in which their husbands worked, made their purchases, and had their meals away from home. The orbits of husbands and wives were largely identical, and each was fully acquainted with the territories of the other. The automobile and the suburban shopping center have put an end to this.

Although the rapidly spreading new pattern has been remarked upon by many commentators, quantitative records of the attending behavioral changes seem woefully lacking. Data should be gathered on the age, sex, income level and occupations of the individuals, and on the type, size, and environs of the urban communities in which the orbits of housewives and children are separating more and more from the orbits of husbands, single women, and "working" wives. Comparisons between cities and metropolitan regions now at different stages of technical progress and industrialization might help us to reconstruct the recent past in places where it is already too late to obtain a clear picture from the records. The history of our adjustments to changing circumstances has a momentum of its own, and a comprehension of days gone by may be quite essential for an understanding of times to come.

Included in the new order of things is also the intriguing phenomenon of a reversal of orbits that may be brought about when large business concerns move their offices into remote, rustic isolation, while drawing most of their workers from distantly surrounding towns and cities. Does the work-a-day ambience of green landscapes increase or reduce the appreciation of urban surroundings, and the need for week-end escape? Is there, or is there not, a positive correlation between preference for office work and preference for city living? It is time to find out.

In an entirely free relationship increasing uniformity of surroundings may conceivably affect territory in entirely opposite ways, depending upon circumstances and personality. The individual might roam over a larger territory in search of satisfactions that are more thinly spread through environment, or the reduced awards of venturing might, instead, cause a confinement of activities within a shrinking area. Factual observation of these reactions would be of great practical and theoretical interest, particularly if the data would permit correlation with psychological traits.

In adults the dimensions of territories and orbits are commonly set by practical considerations and do, therefore, not represent unfettered responses to the environment. But in children and animals the behavior is likely to be predominantly impulsive, clearly reflecting their spontaneous reactions to circumstances. A study of the extent of territory in relation to density of perceptual inventory among children and the higher animals would, therefore, be of great interest. A special aspect of this inquiry might also take the form of an analysis of the proportions of their free time that children will voluntarily spend indoors and outdoors in relation to indoor and outdoor perceptual inventories.

Many of the factors involved in environmental psychology will only manifest themselves in circumstances that offer room for experience, response and choice of action on a scale that it would be physically and economically impossible to duplicate under experimental conditions. The refinement and evaluation of cinematic and other techniques for the creation of simulated experiences are, therefore, an essential prerequisite for the conduct of a well-rounded research program. Such methods are already used in testing the psychological aspects of highway design, and for

other special purposes, so a good start has already been made in the development of devices and procedures.

Simulation is not merely an inferior choice dictated by practical necessities. It also offers very decided advantages over "real-life" observations. In the simulated situation it is possible to concentrate upon one variable at a time, eliminating the others, or holding them constant. Mock surroundings can be altered by simple retouching, without demolition and new construction.

Film footage may make it possible to obtain quantitative expressions for responses that can, otherwise, only be qualitatively described and subjectively assessed. These are only some of the very positive benefits that can be derived from the use of simulation. On the debit side of the ledger is the need to exercise great caution in appraising the responses to counterfeit experience as indices of the reactions and the behavior that can be expected in real situations. But, since application is the final test of a method, the evaluation of illusion versus reality is likely to embrace research projects with an independent value of their own. There is, however, one indispensable facility which still remains to be acquired before environmental psychology will be ready to tackle its most important research problems. That is an entirely enclosed, but internally completely unobstructed space.

The structure that is needed is one on the order of a hangar, a motion picture studio, or an exhibition hall like the largest unit of the Federal Science Pavilion at the Seattle World's Fair. In marine biology, atomic physics and other sciences where facilities of unusual size and expense are needed it has been found practical to have the facility itself set up as a semi-autonomous establishment operated for the benefit of a group of institutions of higher learning that are active in a particular field of inquiry. It should be sufficient to mention Woods Hole Marine Biological Laboratory and the Brookhaven Laboratory as examples of their kind. It would be too much to hope that the many scattered forces of environmental psychology should each be able to secure and take care of adequate facilities of their own, and the pattern of inter-institutional organization that gave marine biology its early momentum might serve environmental psychology equally well at the start. With such space available, it immediately becomes possible to launch

a great variety of investigations which would, incidentally, also advance the evaluation of simulation techniques.

Many subjective and some qualitatively objective claims have been made for the mental and emotional impact of the forms, dimensions and contents of space. These assertions should be tested by actual exposure of adequate samples of individuals to extensive modifications of the interior of the research facility, with and without the introduction of various solid shapes within the inclosure. All the transformations of space and contents should be fully recorded on simulator film for comparison between the reactions of those actually present, and of others who may be made to feel as though they were.

From such general studies to specific inquiries into various aspects of proxemics is only a very short step. For example, by placing people in the reality of progressively reduced space one may observe the syndrome of responses loosely described as claustrophobia. These observations should then be compared with the physiological as well as the conscious reactions to the same series of simulated experiences of space. This might ultimately lead to the development of standardized, simulation sequences that might provide a form of quantitative measurement of a person's psychological space requirements. When the basic method has been worked out it will not only be applicable to the assessment of individual idiosyncracies, but will be readily adaptable for the study of culturally or biologically determined general attitudes toward space. For environmental design it will be particularly important to study the effects of the form and the dimensions of space, as separate variables, including a comparison between contraction and obstruction of the void.

The evaluation tests and experiments that can be conducted in contained space will of necessity be limited to a scale that will not allow a direct approach to the more comprehensive problems of environmental design. The next step must, therefore, be a refinement and appraisal of techniques for the creation of simulated experiences of outdoor situations. Perfection of the means of illusion can probably be achieved most rapidly and most economically by concentrating upon the imitation of an outdoor location close at hand, regardless of whether or not the scene offers an interesting subject for other studies. But, as soon

as an adequate method of simulation has been obtained, its potentialities and limitations in free application to any situation calling for study must be assessed. Among other lines of inquiry this task might involve a general study of cognitive and affective responses to simulated and to real experiences of actual cities and cityscapes.

An adequate collection of simulator films and other devices representative of city environments of all kinds from all parts of the world should be assembled as quickly as possible, but even the images of a few contrasting urban surroundings would suffice to get a research program on its way. Comparisons should be made of reactions to simulated cityscapes observable in (**a**) persons entirely unacquainted with the places imitated; (**b**) persons of the same background having spent some time in the environment shown, including, whenever possible, members of group (**a**) who may subsequently have visited or moved to the location; and (**c**) native residents. When distant locations are contrasted (e.g. Tokyo, Milan, London, New York) intercultural as well as intrasocial and personality differences can be examined. When contrasting situations belonging to the same cultural tradition and geographically near each other are available, they offer the advantage of making it possible to include actual visits in the experimental procedure.

Responses to the cityscape also find an easily recorded expression in pedestrian traffic patterns. The driver of a car is always conscious of the forces of momentum and the physical strains created by changes of speed and direction. This awareness acts as a strong inhibitor of free, spontaneous responses to environmental attractions or aversions, even when traffic conditions do not provide other compelling limitations of choice. But this does not apply to the person on foot. Pedestrian traffic patterns are, therefore, much more strongly subject to the free play of personal preferences for, or subconscious reaction to, milieu than are the other aspects of life in the street, and these patterns should be carefully studied and compared with the patterns of variation of perceptual inventories in the surroundings, with due consideration of other variables such as sun and shade and the human herd.

Any experienced traveler knows that the development of fatigue often seems to bear little relationship to the amount of physical exertion, while it is strongly influenced by the stimulating, in-

sipid or enervating qualities of the surroundings. There are cities where we can walk all day without weariness, and others where lethargy sets in after a short stroll. The tiredness we feel at any time is a composite measure of physical toil and psychosomatic fatigue. To the extent that psychosomatic fatigue is a wasteful product of a maladapted perceptual environment it should be a task of environmental design to effect a cure and an elimination of the evil in the cities of our future. But first we must learn more about the phenomenon itself. This ought not to be too difficult.

Groups of people, particularly children, could be taken on separate trips into contrasting surroundings, while their behavior is being closely observed and recorded, with intermittent or continuing instrument tests, and with particular attention being paid to evidence of drowsiness from underactivity or genuine weariness from being overactivated. Each environment should be experienced in several different ways: with the participants enjoying complete pedestrian freedom of action; by exploration on foot but with physical action uniformly and narrowly circumscribed; by leisurely observation from a vehicle; and by simulator techniques.

A special chapter in the study of psychosomatic fatigue might be devoted to an investigation of the psychological effects of the presence of visible obstacles, such as columns, which restrict the abstract freedom of movement without interfering with any concrete, practical need of such freedom. Architectural criticism is full of references to the desirability of entirely imaginary senses of freedom created by the proper manipulation of space, but objective psychological studies of the phenomenon are not referred to. The entire relationship between mental and practical needs for freedom of choice is crying for clarification.

If visible obstructions may produce tension, there is also reason to suspect that landmarks, directional topographic design, and redundancies in the perceptual inventory of our surroundings, may have relaxing and reassuring properties. But the claims made for the faults or merits of such features are not backed by sufficient, and sufficiently objective, research. More precise knowledge is needed for practical application to environmental design.

There are indications that a diminishing percep-

tual inventory causes a majority of people to increase their speed of movement, whether on foot or by car. But the phenomenon has not yet been sufficiently explored to produce results that can be taken into consideration in planning our milieu. Personality differences between the accelerating majority and the unaffected or decelerating minority should be looked into. By gathering enough data to establish, at least, a quasi-quantitative understanding of the relationship between inventory and locomotor response, we would also lay the foundations for a much-needed method of measuring perceptual inventory by spectator reaction.

To one who has sat in the driver's seat through a highway simulator test it seems clear that our subconscious is completely persuaded by the counterfeit experience. It takes considerable effort of will for reason to regain control over our emotional responses and physical reflexes, while the "show" is still on. This gives reason to hope that a subject placed in a similar device for feigned exploration of cityscapes and interiors—at pedestrian as well as vehicular speeds, controlled by the observer's own foot or feet—will react spontaneously to the psychological abundance or shortages of the unfolding visual inventories. If this hope is well founded, the relationship between contents and projection-speed of the simulator film would provide data that could be used both for the assessment of environmental design and of personality traits.

The procedure suggested in the foregoing paragraph might also become one of the means of investigating the relationship between speed of locomotion and mode of esthetic appreciation and recall. At a pedestrian rate of progress, the inanimate environment is seen, remembered and enjoyed or deplored as a sequence of static forms. With increasing speed of movement there is an increasing awareness of changes in perspectives as a continuous process, performing a choreography in which the movement itself becomes a recognizable element of form. Experiments could be made to compare the ability to recognize scenes repeated or imitated by still projection, and by projection pretending to different velocities of spectator movement, in relation to the haste or tardiness of personal progress during previous exposure to the same surroundings. Possible changes in the esthetic ratings of environmental configurations according to celerity of passage should also be looked into.

Research in animal behavior has revealed a positive relationship between mental performance and perceptual diversity of milieu. In man, only short-term experiments with reversible effects are permissible. But it would seem well worth investigating whether school records and other sociological data show any correlation with the perceptual paucity or abundance of home and territory. Conversely, inquiries should be made into the frequency of erratic and unpredictable behavior

among both animals and man in increasingly homogeneous and predictable surroundings. Excursions with children at relatively spontaneous age levels might offer useful information, along with observations on behavior in enclosed and controlled space. It has been postulated that growing perceptual monotony of the urban milieu may contribute to the rise of juvenile delinquency. General statistics and case histories should give evidence upon this possibility.

When we consider the modern simplification of forms and surfaces, the omission or removal of applied ornamentations, of exterior stairways, railings and other features that used to be commonplace, we realize that the eye level of the viewer makes less and less difference in the appearance of the view. It seems natural to wonder what effects, if any, this progressive elimination of visual clues to growing up may have upon the minds and personalities of succeeding generations.

Architectural adjustments to climate are almost universally treated as though they involved only the simple and obvious physical problems of heat, light, shade, insulation and air conditioning. Nevertheless, it seems beyond dispute that the perceptual image of a building has a lot to do with the sense of well-being it may generate. Houses and cityscapes that look cool and inviting during the hot summer, may look chilly and forbidding in winter, adding to the psychological discomforts of the cold season. The basic assumption is, of course, generally accepted and equally generally disregarded. The region around the Great Lakes, and especially around Lake Michigan is particularly rich in striking, and often highly esteemed, examples of architectural disregard for the psychological effects of extreme seasonal ranges of climatic conditions. Responses to simulated and actual architecture and cityscapes should be obtained at different times of the year, and under different temperature and weather conditions. From such observations it should be possible to gain a rational approach to the problems of climate and environmental design.

Other things permitting, the individual will choose his surroundings according to the preferences and demands of his own personality. When he exercises his choice, there will unavoidably be a feed-back from his selection to the psychological mechanism that made it. This implies a two-way relationship between mind and milieu in which the environment might well prove to be a determinant, as well as a product, of attitude and personality. A comparative study of applicants, day students, dormitory students, and graduates of romantically or functionally designed colleges, in sylvan, small-town, suburban, or metropolitan precincts, should be extremely interesting. But this is only one example of numerous special situations that invite research on the problems of environment and character formation.

Reprinted from ARTS & ARCHITECTURE JUNE 1966

HISTORY & OTHER DIVERSIONS

A Reply to Sibyl Moholy-Nagy

By A. E. Parr, Senior Citizen

(This is the latest chapter in a dialogue between Dr. Parr and Prof. Moholy-Nagy. See A & A Feb./Mar. and May. Ed.)

Before the Industrial Revolution the bread-winner's tasks were, more often than not, performed at, or near home. The chores involved a great diversity of operations and personal decisions, providing satisfactions for adult psychological needs and mental stimulation for the attending child, with frequent opportunity to enter into the activities by rendering minor assistance. The towns were small by modern standards, so that the total, over-all diversity of urban forms and events in any community were to a large extent encompassed within the frequent orbit of the individual, young or old. If the city dweller so desired, the slight dimensions of the urban settlement also made the variety of nature in the surrounding countryside easily available, but there is little evidence of any widely felt wish for such rustic diversions on the part of the general public, before the age of the industrial revolution. Even the romanticism of Rousseau at first only affected what we today might speak of as the intelligentsia and the idle rich.

It was only the industrial revolution, with its monotonous specialization and greatly reduced role of self-direction in the provider's chores, with the removal of these chores from the previous diversity of the home environment and from the stimulus field of the child, with the tremendous expansion of urban dimensions tending to confine individual experience within greatly enlarged, monotypic neighborhoods—which brought into the picture the possibility of an urgent need to retain every element of urban diversity that can

be preserved, and seek new sources of variety in all precincts of cityscape. Elementary recitations of earlier history, known to all, are neither enlightening nor germane. References to the remote past may serve to divert attention from current problems, but have no bearing upon their solution, and the suggestion that what is being done today is "not an iota worse" than what was done about 6,000 years ago seems a peculiarly feeble apology for modern design contributions to monotony. Personally, I am chiefly concerned with the changes I have seen in my own lifetime.

As the industrial revolution progressed there appeared an almost explosive diversity of forms and details in architecture for the affluent. There would be just as much, and just as little, logical reason for assuming that this may have expressed "a very profound human need" in response to rapidly changing conditions of living, as there would be for drawing similar conclusions from "the explicit unification of anonymous environmental design" in the uniformity of the workers' quarters built during the same period, echoing old traditions of minimum effort for the poor in person and for functions deficient in status value. Since the end of the first world war the visual inventory of our surroundings has suffered a quantitative leveling downward instead of upward, which, unfortunately, is not an isolated occurrence in the process we are pleased to call social progress.

Sarcastic comments on the needlessness of research data in regard to the relationship between adventurousness and delinquency, especially when accompanied by extravagant claims about what has been "proven" by "exhaustive studies," can, of course, only inspire added apprehensions concerning the possible role, in urban design, of knowledge acquired by jumping to conclusions. How do we know, except as revealed knowledge, that "the alienation of the physical environment" springs "consciously or subconsciously" from the lack of contrast between shelter construction and "public buildings that symbolize the city as a shared ideal of power and wealth"? Have we any

objective evidence that "generations of city dwellers lived and created civilizations because they were stimulated by great singular public buildings"? And which city dwellers are we talking about, the lords in their mansions or the paupers in the slums?

It seems fitting to apologize to the reader for having to explain the difference between primary causes and contributory factors. Tuberculosis is an infectious disease with the infection always present as a primary cause, but malnutrition, climate, clothing, housing, overwork, dirt, anxiety, and many other conditions may all be contributory factors of greater or less importance in individual cases and in population statistics. The disproven idea of dwelling type as a primary cause of socially objectionable behavior seems rather far-fetched to begin with, but I am not aware of any results of objective research that either could, or would purport to, rule out "some contributory positive connection" between visual monotony of milieu and juvenile delinquency.

If they don't have bread, let them eat cake! If their neighborhood stifles them, let them visit the stoa! It is not true that you cannot teach an old dog new tricks if you have the patience for it. But the plasticity of our minds and personalities declines with the passage of time, so that it is still perfectly valid to speak of the early years of life as the formative period. A child of formative age spends some four to five thousand hours awake each year. It must be the duty of environmental design to provide proper settings for all of these hours, when young minds are open and young senses alert to the stimuli offered by the surroundings, with full recognition of the very limited daily orbits of the very young. One can only hope that not many designers will attempt to dismiss their responsibilities by easy and ridiculously inadequate prescriptions of occasional therapeutic visits to "public buildings and public places" to absorb the "elating, memorable and highly symbolic stimulus" of such august premises. My own misgivings relate to the daily diet of the senses, not to the visual ingredients of their Christmas dinners.

JOURNAL OF SOCIAL ISSUES
VOLUME XXII, NUMBER 4, 1966

Psychological Aspects of Urbanology

A. E. Parr

The first hut was not a home—merely a shield for inactive and vulnerable stages in the course of life, and in the cycle of day and night. Only gradually did the shelter grow to cover work and play, as well as rest and helplessness. Nor was the first village a miniature metropolis, except as the acorn is an oak. Somewhere along the line, in recent times, a critical mass was reached when the man-made city became the environment of its citizens instead of a temporary retreat from the natural surroundings. The new conditions create a new field of study, just as terrestrial ecology is a separate subject from marine biology, in spite of the many basic features the two share in common, and in spite of the historical emergence of terrestrial life from the sea. Urbanology[1] seems a convenient and comprehensive designation for the study of the urban aggregates of men in their selfmade milieu.

There are as many sides to urbanology as there are to marine biology, if not more. Economics, Politics, Sociology, History, Medicine, Engineering, Communication, Transportation and many other subjects are involved. Probably the most neglected aspect of urbanology is that which has to do with the direct impact upon human psychology of the sensory perception of the man-made designs that are rapidly replacing the natural forms of our surroundings, to the point of almost total exclusion from the metropolitan milieu.

In order to define the problems, and suggest working hypotheses and methods, it is necessary to identify some general features in the welter of specific changes that have been brought about. Two common traits stand out. The unending variety of God's creations in fields and

[1] Urbology would be etymologically sufficient, but phonetically inadequate.

forests, on plains and hills, has been succeeded by a far smaller selection of much more rigorously repetitive forms, which has recently been reduced to even greater uniformity by explicit architectural doctrine. A loss of diversity particularly in the visually perceived environment, is one universal, and still continuing, trend in the transition from virgin country to city streets.

Another ubiquitous peculiarity of our new surroundings is the quality of enclosure. No inhabited valley or canyon confines its horizontal dimensions between such close vertical borders as does an urban avenue. In such features of the metropolitan centers as subways and windowless interiors the entombment of space becomes absolute. While primeval forests may provide a somewhat similar sense of confinement under their canopies, it must also be remembered that the pre-urban populations always reached their peak numbers, and the civilizations that gave birth to the cities invariably evolved in more open terrain, and not under the trees or in the crevasses of the earth, although they might emerge from, and subsequently take refuge in such surroundings.

We may therefore begin the attack upon our problems by a study of the psychological effects of visual monotony and enclosure in the various forms which these two attributes may assume in our evolving cities.

Our psychological responses to the environment, or any other source of stimulation, is always a total reaction of the entire psyche in all its facets. Nevertheless, one phase or another may so predominate in the determination of behavior in any particular situation that it will clarify rather than obscure our discussion at this primitive stage, if we speak of mental and emotional effects as if they were separate and independent phenomena.

The problems should also be attacked from two different directions. First, by a psychological study of the mental and emotional needs that environmental design should attempt to meet. Second, by behavioral observations of the responses to actual surroundings, whether, or not, the overt reactions can be clearly identified with specific psychological causes in the consciousness of the responding individual, or in the knowledge of the investigator.

On other occasions I have drawn a parallel between our bodily needs for food and exercise and our mental needs for sensory intake and stimulation. It is common knowledge that unused faculties of the mind fail to attain their normal growth, or deteriorate in idleness after development by use. But the definitions of common knowledge are not sufficiently precise, nor are the observations sufficiently accurate, to make its claims acceptable as scientific evidence.

In this context we are concerned with the mental and emotional exercise and nourishment provided, or not provided by the visual per-

ception of the non-human environment. The contributions of social experience and educational processes belong to another subject. Our question is simply whether these experiences and processes are, or could be made, sufficient to meet all our psychological needs in the best manner possible, entirely independently of the non-human milieu in which they take place. Or whether our inanimate surroundings do, or could, contribute significantly to the development of personality and intellect.

To determine the importance, or unimportance, of sensory intake, *per se*, we need, first of all, a method of qualitative classification and quantitative evaluation of the contents of our perceptions of locale. This may prove a formidable, but certainly feasible, task in itself.

The measure of our visual input is obviously not how much we see, but how many significantly different images our senses transmit to our minds. The geometric dimensions of our field of vision remain the same, but, to most of us, the face of a gravel bank represents only a single perceptual entity, not the sight of a million pebbles separately perceived, while a view of a busy harbor is seen by most as a series of simultaneously observed tableaus. The measure we seek must relate to the diversity rather than the repetitive quantity of our experiences. But the comparison can not be generalized without regard to the personalities involved.

To the ordinary city dweller a wild meadow in the early spring is only a pleasant, but flat and monotonous stretch of textured green. But to a lover of nature it may be an exciting vista of hundreds of plants and shrubs, birds and insects, individually perceived. And to a geologist the pebbles of the gravel bank may tell a hundred stories. All we are able to ascertain by analysis of the environment itself is the richness or poverty of its potentials for varied experience within different frames of reference. But for an evaluation of these diversity-potentials we must turn to a study of human reactions to their presence. This may not be as difficult as it sounds.

A valuable clue to a measurable psychological assessment of environmental diversity may be contained in Boutourline's observation that a majority of the visitors at the Seattle World's Fair moved faster as the "visual inventory" decreased in the direction in which they were going. Subject-controlled speed of simulated progress through facsimiles of actual precincts, created by film photography or other methods, might give us a usable index of psychologically effective diversity, or point the direction towards other practical procedures, perhaps involving such features as automatic recording of attention span in make-believe renditions of real environs. All observations must, of course, be correlated with a determination of the more important personality characteristics of the subjects used in the tests.

Assuming that a method of evaluation of environmental diversity

has been achieved, we must also devise a rational plan for its application. Since urbanology is, as yet, virtually barren of information bearing directly upon the relationship between the human mind and its inanimate milieu, in the sense of cityscape and architecture, it is scarcely possible to offer anything as definite as a system of working hypotheses. But scattered information in other fields of inquiry does, at least, suggest some fairly unequivocal questions that ought to be answered one way or another for the good of urban design.

Depending upon the age at exposure, detrimental effects of unfavorable surroundings might take the form of arrested or retarded development, or of deterioration after healthy progress. Such studies as have been made on animals (4) consistently point to the conclusion that the more variable of two early environments produces an adult organism that is perceptually and behaviorally more alert, flexible and able to cope with change, while early perceptual restriction tends to result in characteristics commonly considered indicative of low levels of intelligence. Perhaps even more suggestive of the problems of urbanology are Kavanau's findings (3) that the remarkable feats of learning demonstrated by wild rodents far exceed the performances of their domestic relatives. Stripped of superficial details, urbanization and domestication have so much in common that it is very difficult to contrive separate definitions which would be functionally distinct in any fundamental sense.

At the other extreme we have the widely publicized experiments on human subjects showing the astonishingly destructive mental effects of sensory deprivation after normal development under favorable circumstances. It is always dangerous to assume that if the causes can be arranged in a series differing by degree only, so can the effects. Taken in small doses, some of the strongest poisons are also among the best stimulants to health that medicine has to offer. But the knowledge of such startling effects under artificially intensified conditions certainly makes it incumbent upon us to investigate whether an appreciable correlation between environmental diversity and intellectual performance can be found to exist within the normal range from variety to monotony in urban surroundings.

Some of our responses to the perceptual environment may express themselves principally in our overt behavior, without immediately, or ever, precipitating any great changes of intellect or personality. It is, for example, well known that pedestrians do not necessarily take the shortest course between starting point and destination: On the contrary, they will go out of their way to follow preferred routes that consequently show a much higher ambulatory population density than any random distribution of paths can account for. In many specific cases the explanations are very trite and obvious. But when the causes are more subtle and complex a study of pedestrian trails might greatly

advance our understanding of environmental psychology in urban surroundings.

If we were dealing with pure physics, it would be very tempting to try to use Boutourline's observation[2] of acceleration of movement towards diminishing visual inventory as a purely mechanical explanation of deflections from the shortest course through a variegated cityscape. But other possible sequels to Boutourline's study seem far more promising of significant results. An examination of personality differences between the majority that does move faster, and the minority that does not, might be of very great interest. Does the minority compensate for reduced sensory intake by day-dreaming or other mental activity, while the majority "instinctively" tries to maintain the rate of intake by physical action resulting in a more rapid change of surroundings, thereby adding diversity in time to an inadequate diversity in space? Since it seems unthinkable that acceleration should continue into an environment of complete monotony, or of sensory deprivation, there must be a limit of uniformity beyond which the process comes to a halt or reverses itself. It is difficult to think of any situation or experiment in which this could be observed directly. But it might not be a too exacting task, particularly with children, to determine if there is a relationship between the orbit of their daily peregrinations and the degree of diversity of their surroundings. And, if a connection is found to exist, it should also be possible to establish whether there is a level of monotony beyond which the expansion of orbit in search of variety changes into a contraction due to insufficient rewards for exploration.

But uniformity and predictability of milieu may conceivably have much more drastic effects upon behavior than the mere discouragement of rambling movement, particularly among the young. An important component of the spirit of adventure is a craving for unanticipated experience. When the physical environment ceases to provide the unexpected within reasonable distance of travel, some may succumb to dullness, others may seek compensations in the life of the imagination, and still others may, deliberately or unconsciously, seek to create surprise and suspense by their own irregular and often unpremeditated actions. Social research is accumulating considerable evidence that a good deal of what we call juvenile delinquency may simply be the product of adventurous spirits placed in unadventurous surroundings. It must be the task of social psychology to create a more precise knowledge of these relationships, and the duty of urban design to restore to the cityscape the requisite degree of diversity that may be found to be wanting.

In the last example of overt behavior that may possibly be associated with environmental deficiencies, emotional factors would, of

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[2] Personal communication.

course, play a prominent role. But emotional states do not necessarily find expression in specific patterns of behavior in which the underlying feelings are easily recognized. A competent inquiry into the problems of mind and milieu can therefore not be limited to the study of mental performance and physical behavior. It must also try to penetrate the domain of our emotions. Among the research problems that suggest themselves is the question of whether or not the inanimate environment can contribute in a serious measure to that sense of insecurity that has become such an evil of the day.

It is an extremely rare person who does not remember with nostalgia the precincts of his childhood. Fried (2) speaks of the strong attachment for their wretched environment shown even by those who live in the slums—an affection for locale that causes them to experience the pangs of genuine grief over a lost home, when they are relocated into a "better" vicinity. Lynch, and others, report similar observations. The chief component of this virtually omnipresent attitude of retrospective devotion to scenes and abodes of the past is undoubtedly a longing for the remembered security of early days. However hazardous life may seem to the elders, and however miserable the conditions of existence may be, the four walls of home still mean food and shelter to the very young, and the familiar sights of the neighborhood give assurance to small adventurers that they have not lost their way into a world they can not cope with. This confidence in the benevolence of fate and circumstances becomes firmly associated with characteristic shapes and patterns of the surroundings in which the faith in life was born, so that similar forms and larger configurations will ever after release heartening echoes of the sense of asylum once enjoyed at a less analytical age. The more we change the world around us, the less we leave of stimuli keyed to restore the feeling of security so easily gained when we were very young, and so terribly hard to develop under different circumstances later in life.

If the building arts deny us the opportunity to identify the milieu of our maturity with the background of our infancy they may very well help pave the way for the pullulation of anxieties, and the alienation of the individual, which have become the greatest banes of life in modern society. There is an urgent need for psychological study of the facts and possibilities, and for our architects and urban planners to recognize that what they design in the minds of men is more important than what they create in steel and concrete and traffic patterns. Progress has always been with us. But, until the First World War, tradition remained part of the clay in which new forms and new traditions were molded, and a recognizable continuity through all the transitions of environment helped to maintain emotional stability. It is not beyond possibility that the shift from evolution to revolution in the recent history of architectural doctrine may have added significantly to the

burdens of our times, by undermining whatever feelings of security could still be obtained from a sense of belonging in a continuously evolving, rather than disintegrating and moribund milieu, in process of being superseded. This is not an argument against progress, only against the arbitrary injection of changes designed with sole consideration of the stresses and strains in steel and concrete, but not in the human mind. To help lay the foundations for better procedures is a challenging task for environmental psychology.

There are also many other areas of human behavior and experience in which the form of our surroundings may be suspected of contributing materially to our mental well-being or discomfort. There are locales in which we "instinctively" feel relaxed, and others in which we become tense or restless. The reactions may differ for each of us, but are also likely to have a common denominator in a great variety of situations. Almost nothing is known at a scientific level about the cause and effect relationships involved, except under such restricted and oversimplified laboratory conditions that the observations are scarcely applicable to the problems of urbanology. Are covered arcades superior to open sidewalks in warding off claustrophobic effects in man-made canyons? How do the proportions and dimensions of the vista, its unobstructed distance, width and height, relate to the psychosomatic fatigue which sets in very quickly in some locations, and is never felt before genuine physical weariness is reached in other settings? Are there forms or obstructions of space that promote irritability and social stress? We are fairly certain that there are those that tend to induce peace and calm, but are almost totally ignorant of conditions at the other end of the spectrum.

The inventory of our ignorance could be extended *ad infinitum*. To those who design receptacles and mechanisms for the needs and uses of atomic energy, the behaviour of the atom is the primary object of study. It is high time to insist that the behaviour of men, and the needs of the human mind, be also made the first objects of study in planning the environments in which our minds must function and our lives will be contained.

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A. E. Parr URBANITY AND THE URBAN SCENE

Reprinted from
LANDSCAPE
SPRING, 1967
VOL. 16 NO. 3

The Child in the City:

Urbanity and the Urban Scene

A. E. Parr

PLANNERS, CRITICS AND defenders of the metropolis seem divided over the question as to whether the texture of life and the structure of society are being rapidly and drastically altered by our evolving cities, for better or for worse, or whether the basic pattern and aims of urban existence are not changing at all, merely using new vehicles for old functions and purposes. The dispute often resembles a conflict of cults rather than rational debate based upon clearly stated and verifiable premises. It is particularly rare to find any contestant offering a full and clear description of the state of affairs that presumably was or was not the urban condition that is now in transformation. A more common ploy is to try to divine our destination, which is then retrospectively claimed to be where we have always been, or wanted to be—or have never been before—even though it may have looked otherwise, either way.

One of the problems is, of course, that modern sociology is itself a child of the 20th Century which it attempts to study. The students therefore came upon the scene too late to gather data of their own on the point of departure for the social evolution of the age we live in. A brief recollection of certain urban experiences of a child born when the century was born may contribute at least one statistic towards the accumulation of a bench mark from which the tides of change may be measured.

Until I reached the age of five we lived a short commuter distance outside of a town of about 75,000 on the west coast of Norway. Not as a chore, but as an eagerly desired pleasure, I was fairly regularly entrusted with the task of buying fish and bringing it home alone. This involved the following: walking to the station in five to ten minutes; buying ticket; watching train with coal-burning steam locomotive pull in; boarding train; riding across long bridge over shallows separating small-boat harbor (on the right) from ship's harbor (on the left), including small naval base with torpedo boats; continuing through a tunnel; leaving train at terminal, sometimes dawdling to look at railroad equipment; walking by and sometimes entering fisheries museum; passing central town park where military

band played during mid-day break; strolling by central shopping and business district, or, alternatively, passing fire station with horses at ease under suspended harnesses, ready to go, and continuing past centuries old town hall and other ancient buildings; exploration of fish market and fishing fleet; selection of fish; haggling about price; purchase and return home.

I do not intend to claim that this was usual for a four year old boy on his own. Rather was it due to very unusual parents. The point is that such experiences were possible and permissible at that time while they would be utterly unthinkable today, due in no small measure to the hazards introduced by automobile traffic, among other causes.

When I was five we moved into the town itself, and I started to kindergarten and elementary school soon after. The days would go as follows: off to school with other children joining the morning stream of white-collar pedestrian males ranging from clerks to shipowners, usually not walking with our elders but unavoidably exposed to overhearing adult conversation and observing adult behavior; soon passing a small botanical garden and greenhouse and a large building housing a substantial museum of natural history and a fair museum of history and ethnography; passing, also, a great architectural variety of residences; then the railroad terminal and the building opposite which houses the fisheries museum previously mentioned, and also, on higher floors, a museum of decorative arts, a small city art gallery and the exhibition halls of the art association; past the central park with the music stand to the school, which shared a block with the fire station, city prison and an historic but still functioning public building. These were the days of two work periods with a long mid-day break. During the break the morning route was reversed, with stops to listen to the military band, to pay visits to museums (in my case) and to seek other adventures. At this time the stream would include some women, and it would cross a flow of blue-collar workers moving in the other direction. In the afternoon the pedestrian procession would go back again, but now with a considerable number of wives on errands of their own, starting out with, or more or less at the same time as their husbands, and proceeding to the same parts of town, sometimes accompanied by their children, there being no afternoon elementary school. When spending free time in our own neighborhood, I had only about 300 feet to walk to watch activities in a booming shipyard; about 1000 feet farther along came the public aquarium; and immediately beyond that was the seawater moat protecting the naval station, where sticklebacks nested in the seaweeds; sculpins, gobies and small flounders darted about and could

be watched for hours. In another direction it was about 300 feet to ferry stairs where I could fish, about 600 feet to a large dock and coal depot, and many rocky, still vacant lots to explore. There were also frequent visits, unaccompanied, back to the natural history and the history museum. This is actually only a very incomplete list of how things were around 1905-7.

GUTHEIM HAS SUGGESTED that if we are to have cities it must be because they make men. Whether or not we stipulate that this is the purpose of their existence, no one can deny that the cities among their other functions also serve as nurseries for future generations. Today probably all psychologists agree that the character, personality and future potentials of the individual are usually determined in all their basic features before, perhaps even long before, the child becomes a teenager. Before attempting to distill the essentials from this recital of childhood memories it therefore seems best to call attention to the fact that children in the first dozen years of their lives may well have to be considered the most important segment of the urban popuation. One or two centuries ago such a statement might have been merely a sentimental generalization of parental affections or the expression of a romantic devotion to the welfare of a future world of which we would not be a part. But with the life expectancies of today, our own comforts and pleasures will be in a large measure dependent upon more than one generation of adults raised from children born after we ourselves first saw the light of day. It is time to stop fooling ourselves about the place of children in our lives. What the city does or does not do to the children must be a matter of equal concern to the most realistic egotist and the most visionary altruist.

References to man's increased mobility run like a bad refrain through all the literature on urban planning. Sixty years ago the mobility of a child in first grade was not very different from that of its parents, and its autonomous daily orbit was virtually identical with that of its elders. Today the mobility of the adult is greatly increased, but one never sees any mention of the corollary fact that the child's mobility has simultaneously been greatly reduced, largely as a result of the hazards introduced by the new means of adult locomotion. The child's daily orbit has been even more sharply curtailed than its mobility. It seems the ideal of all urban designers to place the schools as near the homes as possible and with the simplest route between them, at the same time as urban growth is pushing residential precincts and school districts farther and farther away from the centers of history and of current affairs. A child's exposure to the life of the city two to

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four times daily has become a thing of the past.

Sixty years ago the orbits of men and women were also essentially the same. Automobile transportation has greatly increased the mobility of both, but has also separated the orbits of housewives from those of husbands and of women workers in business, industry, government and the professions. This reduction of urban experience shared in common by men, women and children also reduces their ability to communicate with each other.

There is no doubt in my mind that the daily morning promenade to school and office greatly extended the influence of the male adults upon the children, not by direct communication so much as by the child's observation of adult speech and behavior among adults. The separation of orbits has destroyed this feature of urban childhood.

THE OPPORTUNITY TO FIND and to join people with the same interests and attitudes is today often extolled as one of the great virtues and attractions of the metropolis. This may be true in the age of the automobile. But in the pedestrian era one of the greatest virtues of the city was that it did not permit the degree of withdrawal into the circle of the like-minded which now seems to have become so desirable. Cities were proudly referred to as "melting pots" and "mixing bowls." My own memories tell me that the four pedestrian parades each day were an important instrument of this mixing process that spun the warp of our social fabric. There can be a lot of communication without the exchange of words. Those that you see or "run into" several times a day may become friends or remain your enemies, but can no longer be thought of as alien devils in the dark, with all the vicious feelings that complete ignorance between antagonists is likely to encourage. Bumping bumpers is not a good substitute for rubbing shoulders.

For us children in particular, the institution of domestic servants added immeasurably to the bonds of understanding that made one community without uniformity out of a great diversity of people in a wide variety of circumstances. Often it served in a three-way relationship. A maid from the outer islands might give us a warm insight into the life of a fisherman and his kin, as well as an appreciation of the urban workers among whom she made her friends in town. And her uncontrived mediation would of course operate in both directions. Vacuum cleaners and washing machines do not have quite the same effect. This is not to be construed in any way as an argument for a return to the past. But must we always be so faint-hearted that it is necesary for us to forget the merits of any system we want to condemn on the balance of its

assets and liabilities? Whatever else they did and suffered, house servants also performed important functions as human lines of communication in the warp of a nation.

The individualistic architectural diversity on the way to school has for most children been replaced by a walk, if not a ride, within the monotonous anonymity of new housing developments, and the twice daily autonomous plunge into the heartland of urbanity has become a rare and guided event during the early years of life.

It is commonly assumed that the greatest cultural opportunities are generally enjoyed by the inhabitants of the metropolis. And again we have to contend with reasoning based upon the exclusion of the child from the logical premises of current rationalizations about the urban condition. As our cities increase in size their cultural institutions tend to grow larger, or more select in their quality, or both. But these establishments scarcely ever multiply in proportion to the expansion of the community. For the adults the resulting greater distances may be compensated for by their increased mobility, but even this is a very questionable assumption. Highest per capita museum attendance is, for example, not found in the largest cities. But for a child, with his reduced autonomous mobility, the opportunity for frequent and independent visits to cultural treasures and centers of informal education are virtually eliminated by the urban spread. While electronic surrogates have valuable uses of their own, they are in no sense adequate substitutes for self-directed experience of the real thing. I am quite confident that any objective investigation of the urban ecology of children would prove the average metropolitan child to be culturally underprivileged by comparison with the youngsters growing up in medium to small cities with a modicum of cultural interests and attainments.

The one shining exception to the rule of growth without proportionate multiplication is provided by the public library system, which may be considered to occupy an intermediate place between the cultural institutions of entirely optional and informal attendance and the educational system of formally scheduled and required studies. If the cultural institutions could be persuaded to adopt a pattern of dispersal similar to that of the libraries and schools, it would help to restore some of the childhood opportunities that have been lost in megalopolis, but no such remedy is available for the loss of exposure to the urban milieu of history.

In the childhood I have described we walked with history every day, not merely among the rather perfunctory reminders of scattered and protected historical houses and monuments, but in churches and commercial structures

still carrying on their normal functions of centuries past; in squares before or around public buildings still in active use in the conduct of public affairs; past residences still occupied in a perfectly normal manner without evidence of self-consciousness. When towns become cities, residential quarters tend to shift away from the central area and the everyday contacts with the past during the years of childhood become infrequent experiences organized and guided by ones elders. The population explosion has watered the wine of history. There is, so to speak, less history per capita than the world has ever had before, less opportunity for the average person to identify his own life with that of the past, through a sense of acting it out on the same stage, using some of the same props.

THESE COMMENTS AND RECOLLECTIONS are offered as a contribution to our awareness of the nature and dimensions of some of the differences between childhood life in an old and small but thriving city at the beginning of the century, and childhood existence today in the family precincts of a modern metropolis, in order to show that these are not differences that can be blandly discounted by our urban fortune-tellers bent on proselytizing us for their own favorite version of the future. This is not the place for a detailed analysis and evaluation of the consequences of our altered circumstances, but one broad generalization suggests itself as a possible warning of danger. So many of the changes that are taking place—through increased adult mobility, the replacement of domestics by mechanical appliances, the dilution of history and other developments including automation in commerce and industry—seem to have the effect of reducing the warp of society while increasing the woof, and a heavy woof in a slender warp does not provide a strong fabric.

When some of our planners now envision a diffusion of our cities over the countryside, with destruction of the dichotomies that once distinguished the rural from the urban, what they preach and foresee will probably prove less of a dispersal of urbanity through the provinces than of an urban conversion to provincialism. But it should not be beyond our abilities to avoid such an outcome if we honestly acknowledge the changes that are taking place, and do not merely disclaim the damages, but seek compensations for our losses, while continuing to improve upon our gains.

NHMRL0000077